FLIGHT

MAGAZINE

SEPTEMBER 1953

35 cents

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DETROIT

FIRST PRODUCTION MODEL PIPER APACHE

CUTLASS ABOARD A CARRIER AT SEA

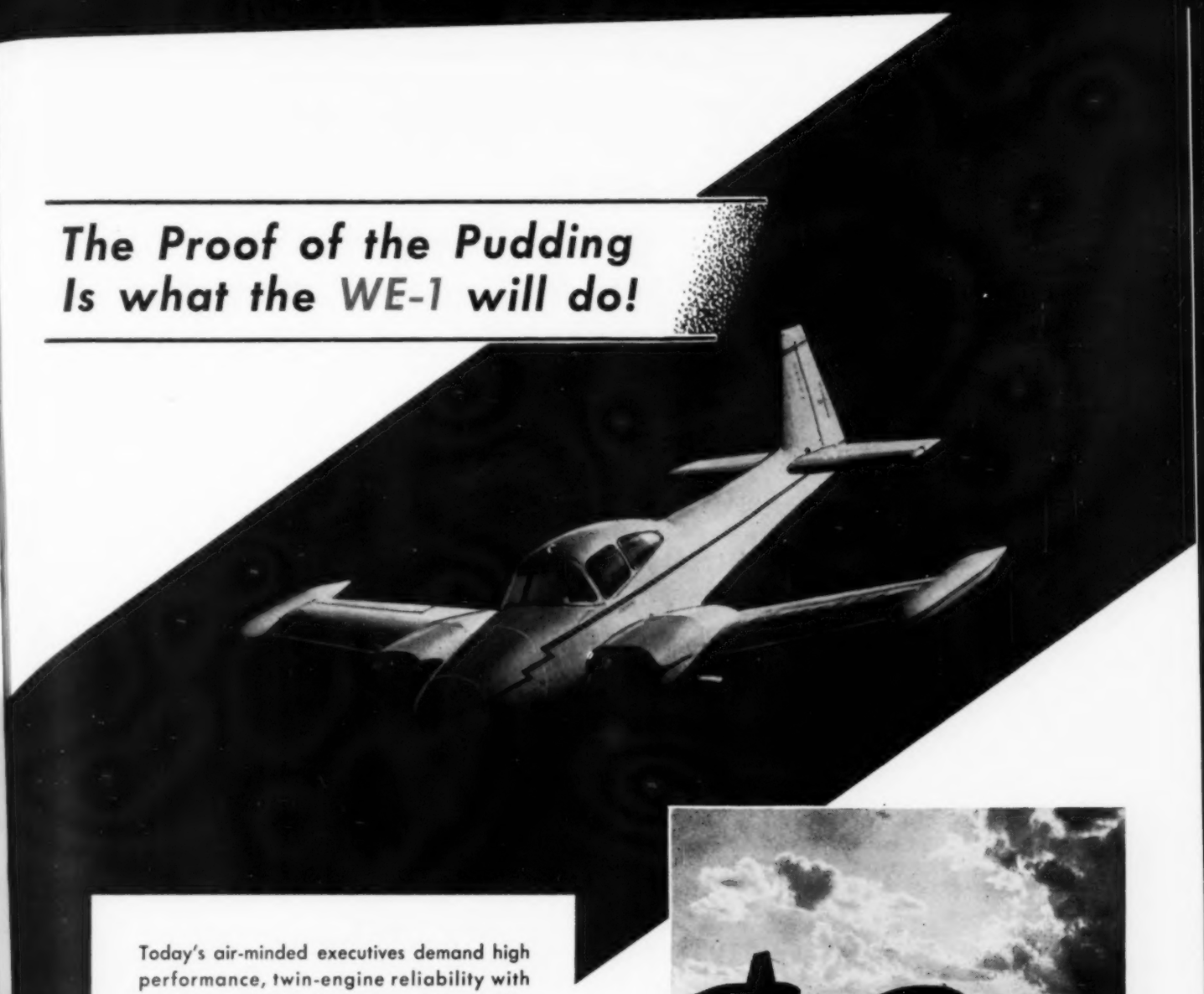
"In the Groove"

The Navy's new swept-wing, twin-jet F7U-3 fighter, designed to be a top performance member of America's Air Power team, prepares to land during carrier evaluation trials.

Chance Vought Aircraft DALLAS, TEXAS

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

The Proof of the Pudding Is what the WE-1 will do!



Today's air-minded executives demand high performance, twin-engine reliability with maximum safety and economy of operation from the aircraft they fly. Associated Airmotive at San Antonio recently took the wraps off their twin-engined Navion conversion, the WE-1, to reveal a skillfully engineered, highly utilitarian airplane for the flying executive. A 190-mph. true-airspeed airplane with 180-mph. cruising speed using 75% power at 8500 feet, the WE-1 weighs in at 3,940 lbs. gross with 110-gal. fuel capacity. Equipped with 235 h.p. Continentals, flying qualities exceeded expectations in that little or no difference in handling characteristics are apparent as compared to the single-engine Navion. The proof of the pudding is in the performance and the WE-1 has the performance. Mobilgas and Mobiloil are the fuel and lubricants used in this top-flite executive aircraft in her 4,000-mile demonstration tour.

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NEW TWIN-ENGINE EXECUTIVE AIRPLANE

The Aero Commander provides wings for the busy executive to keep pace with the surge of our nation's commerce. This 200-mile-an-hour transport daily speeds key personnel from coast-to-coast. The Aero Commander is a five-to-seven place plane with a non-stop range of 1150 miles.

COMPLETE INFORMATION AND NAME OF YOUR NEAREST AERO COMMANDER DISTRIBUTOR ON REQUEST.

AERO DESIGN Commander

AERO DESIGN AND ENGINEERING COMPANY
TULAKES AIRPORT • OKLAHOMA CITY, OKLA.

TIME WAS when Calbraith Rodgers took 84 days to complete the "First Transcontinental Aeroplane Flight" on Goodyear tires—a daring trip during which Rodgers had to be accompanied by a train carrying spare parts, as well as a tow truck for hauling his Wright biplane out of ditches!

For that was back in 1911 when plane and engine usually required drastic overhaul after a few hours' flight. In those days the number of civilian aviators could be counted almost on one's fingers. "Landing fields" were any available pasture, and airports and service facilities were practically non-existent.

AVIATION 50th ANNIVERSARY GOODYEAR ONE OF THE PIONEERS

GOODYEAR AVIATION PRODUCTS

NOW modern private planes can make the coast-to-coast trip in a matter of hours—with complete assurance that, should parts be needed, Goodyear Aviation Products are *quickly available* at any of the vast network of landing fields where distributors display the Goodyear "Sign of Service."

Convenient warehousing and complete distribution of tires, tubes, wheels, brakes—or any of the other many Goodyear Aviation Products—mean quick *and* reliable *service for today's private plane owner and operator.*

Goodyear Aviation Products Division—Akron 16, Ohio or Los Angeles 54, Calif.—contributing to aviation progress since 1909.

We think you'll like THE GOODYEAR TELEVISION PLAYHOUSE every other Sunday—NBC TV Network

Pioneer Airliner-1919

The Lawson Airliner was built at Milwaukee, Wisconsin, in 1919 with V. J. Burnelli (left) in charge of design and construction. Designed to carry 26 passengers, it was the first airliner developed after World War I that was not based on a converted bomber design. And today, Burnelli is still vitally interested in aviation. His "Loadmaster" design, developed on the "lifting body" principle, illustrates his contention that the load carrying body of an air transport should not only provide a minimum resistance to flight, but should also contribute to its own support. Burnelli has built nine versions of this evolution in modern airplane design . . . all of which have flown successfully.

Petroleum research has kept pace with the pioneering of new aircraft designs—for like any engine, an airplane engine can only operate within the limitations of the fuel that powers it.

Phillips Petroleum Company has been a leader in this research—developing new and improved aviation fuels for military and commercial, as well as private planes. Today, Phillips is one of the country's largest producers of aviation gasolines—supplying great quantities of new fuels for turbo-props and jets, in addition to a tremendous capacity for producing 115/145 aviation gasoline.

For dependable, high-performing aviation products, rely on Phillips.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

THE SUPER-CONSTELLATION

Commercial flying has come a long way since the days when the Lawson Airliner first took to the air. Of the nineteen major airlines in operation in the U. S. today, TWA-Trans World Airlines alone maintains a fleet of planes consisting of 10 Super Constellations, 68 Constellations, 40 Martin 4-0-4's, 12 Martin 202A's and 13 DC-4's—and employs a total of 1168 licensed pilots.

Phillips 66

AVIATION PRODUCTS

1903 50TH ANNIVERSARY OF THE AIRPLANE 1953

AIR Report

Significant Trends and News

FULL DETAILS OF PIPER TWIN APACHE are scheduled to be revealed next month. First production model all-metal Apache began flight tests last month at Lock Haven (see cover picture). Luxurious 4-place interiors will be featured. Power plants are newly-developed 4-cylinder, 150-hp. Lycomings with constant-speed, full-feathering Hartzell propellers.

USAF HAS TAKEN DELIVERY of the Cessna XL-19B, world's first turbo-prop light airplane which made its first flight last November. It is powered by a Boeing 502-8 turbine engine with fixed-pitch McCauley propeller.

TWO NEW CROP PLANE DESIGNS are a 190-hp., low-wing, externally-braced duster built in his spare time at Ragsdale Flying Service's hangar in Austin, Texas, by a Texas University student who is also a duster pilot, and a new "Air Tractor" being built by Central Aircraft, of Yakima, Washington. The Texas experiment utilizes a thick wing for high lift at slow speeds. Its builder and designer is Leland Stowe, 23-yr.-old engineering graduate student who says he spent $6,000 on it in addition to his personal time. He expects to use it in writing his thesis for a master's degree and says he will dust crops to earn his investment in it. Stowe has 1,000 hours of dusting experience. The Yakima crop plane is a new bi-plane design for radial engines up to 450 hp. The top wing connects with a "V" to the fuselage, giving the pilot superior visibility forward through the "V," and all wing tips are squared with spill plates for better handling at low speeds. All wing panels are interchangeable.

BEECH AIRCRAFT IS SETTLING DOWN TO INCREASED PRODUCTIVITY with a smaller working force. On Aug. 13, engineering division reorganization was announced with A. S. Odevseff, on the staff 17 years, in charge of military projects, and Herb Rawdon, who first joined Walter H. Beech in 1926 at Travel Air, in charge of commercial projects. Dean Burleigh, a Beecherafter for 19 years, heads administrative and statistical engineering. Their appointments followed resignation of Ted Wells as chief engineer. His successor has not yet been named. Two days later, Beech announced two new vice presidents and a new director, the latter being C. C. Pearson, vice president in charge of manufacturing. The new vice presidents are James N. Lew, 13 years with the firm, who has charge of contract administration, and Lynn D. Richardson, 6 years with Beech, who is in charge of military sales.

A NEW HYDRAULIC NOSE WHEEL STEERING UNIT is now standard equipment on Aero Commanders and is operated through the rudder pedals. It also serves as a dampener.

OPERATION OF F-84F FIGHTERS FROM CONVAIR RB-36F RECONNAISANCE VERSIONS OF THE B-36 has been confirmed by company and USAF announcements. A large, retractable "trapeze" within the bomb bay launches and retrieves the parasite fighter in flight. The operation was to be publicly demonstrated over the Labor Day weekend at Dayton, Ohio, at the National Aircraft Show.

TWO TURBO-PROP BOEING C-97 STRATOFREIGHTERS have been contracted for by the USAF from Boeing, Pratt & Whitney T34 turbo-prop engines rated at 5,700 hp. each being used to replace 3,500-hp. Pratt & Whitney Wasp Major piston engines. The jets will reduce the C-97's empty weight by 5,000 lbs., or about 1,250 lbs. each.

ONLY "LAST FLIGHT" COVER we ever received came last month from Joe Garside, president of Wiggins Airways at Boston, scheduled service of which was discontinued July 31 after CAB failed to renew its certificate. It had served 35 cities from Sept. 19, 1949. About his airline's untimely demise, Joe wrote: "Time usually is the best judge of the wisdom of such decisions."

NEW FLYING BOXCAR PRODUCTION FACILITIES at Hagerstown, Maryland, have been occupied by Fairchild for C-119 output. Largest of the $9,000,000 structures is a pro-

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

SEPTEMBER, 1953 VOL. 40, No. 3

COVER: First flight view of the first production-model Piper Apache, all-metal 4-place said to cruise over 150 mph. and to have a single-engine ceiling above 5,000 ft. at gross weight. It is powered by two 150-hp. Lycomings with full-feathering Hartzell propellers. Full details will be announced in FLIGHT MAGAZINE for next month.
—(Piper Photo by Hans Groenhoff.)

Air Report—SIGNIFICANT TRENDS AND NEWS - - - - - - - - 7

Just Among Ourselves—EDITORIALS: OPTIMISM; WHY HAVE A STRONG NATA?; THE AG-1 PAYS OFF - - - - - - - 13

First Flight—AL MOONEY'S NEW 4-PLACE SUCCESSFUL WITH LAMINAR-FLOW WING FOR HIGH PERFORMANCE - - - 16

Inside Passage to Alaska—BY LEE RENSHAW—REPORT ON A BUSINESS TRIP UP THE HIGHWAY TO ALASKA IN A CESSNA 180 - 18

Lear Modification Center—BY TOM ASHLEY—EXECUTIVE FLYING'S NEWEST SERVICE CENTER AND ITS FAST, PRESSURIZED LODESTAR - - - - - - - - - - - - - - - - 20

Ice Patrol by Copter—CANADIAN ICEBREAKERS DO THEIR JOB BETTER WITH HELICOPTERS ON BOARD - - - - - - - - 22

Pressurized Cabin for Executives—THE FIRST DOUGLAS A-26 CONVERSION WITH REVERSE-PITCH PROPELLERS - - - - - - 24

Airmen's Calendar—COMING EVENTS - - - - - - - - - - 29

Questions and Answers for Airport Operators - - - - - - 42

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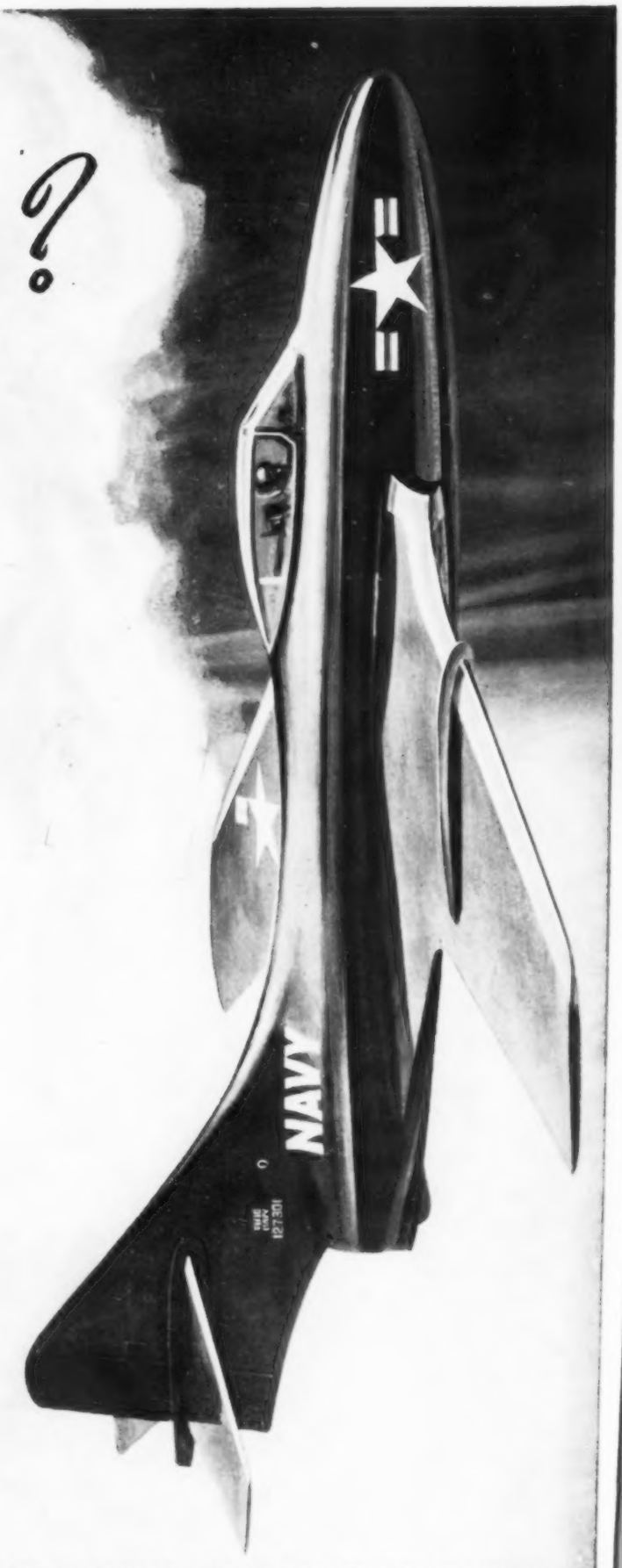
Gun platform?

SURE. That's all a fighter plane is—
a gun platform. But up here you forget.
Up at thirty thousand feet, the sun is white
on anvil wisps of thunderheads. You
move the stick over. The horizon rolls and
you look up at the sea.

To the engineers, she's the Cougar—
complex requirements solved by design. She
is so many pounds of thrust and weight,
lift and drag. She is thousands of parts and
hours of work by hundreds of men and
machines, hours of inventiveness and
investigation. To some, she is requests to do
more, carry more, fly faster, which
somehow she does.

A gun platform? The best, and more.
So much more, you wonder sometimes how
men with only knowledge and experience,
with only their hands and their machines
could ever have created her.

Make your career in Naval Aviation.



Grumman

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
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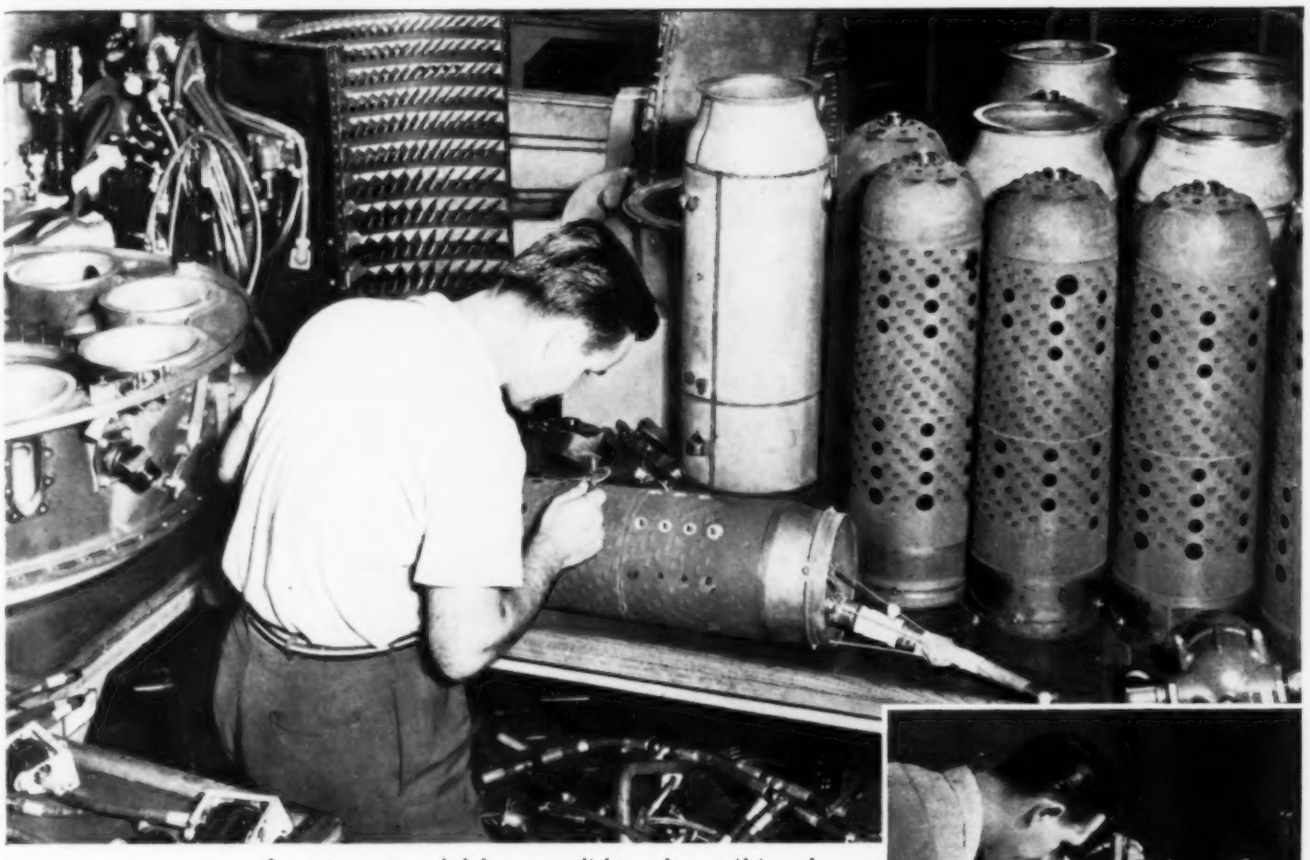
DESIGNERS AND BUILDERS ALSO OF THE PANTHER JET FIGHTER, THE ALBATROSS TRIPHIBIAN, AND THE S2F-1 SUB-KILLER

ANOTHER REASON ALLISON LEADS IN THE AIR



Inspector uses sealed beam spotlight and magnifying glass for visual check of inner combustion chamber.

Turbine blade serrations are inspected under 45-power binoculars.

The sky's the limit on our tests

In the never-ending search for higher standards of jet performance, for improved materials and increased endurance, Allison engineers keep putting jets through their paces under every conceivable flight condition—even to altitudes above 45,000 feet.*

Then, as the picture above shows, they completely dissassemble the engine for a detailed inspection of every part. The parts you see here are from an experimental model of a J35 engine that recently completed an altitude test well above the 45,000-foot mark. Some 3,500 parts are spread out on tables for examination. Tests go far beyond mere visual scrutiny and usually include fluorescent-penetrant, magnetic-particle and dye-penetrant inspections, as well as X-rays in some instances. No part is too small to be checked. And constant improvements are being made in our inspection procedures to be sure that no flaws or breakdowns in any piece escape detection.

Yes, the sky's the limit on our tests. And this thoroughness of inspection—in both experimental development and production engines—pays off in the greater dependability for which Allison engines are famous.

**Security restrictions do not permit identification of the actual altitude reached.*

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Allison DIVISION OF GENERAL MOTORS, INDIANAPOLIS, INDIANA

World's most experienced designer and builder of aircraft turbine engines—*J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines*

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2. SIMPLICITY for maximum ease of installation, adjustment and repair.
3. COMPACTNESS adapting them to modern airframe design.

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Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

duction bay 765 ft. long and 200 ft. wide for final assembly.

SIKORSKY TRANSPORT HELICOPTER FOR AIRLINES, said to be six years off, will have two geared turbine engines on stub wings, a single main rotor plus a tail rotor, a 34,000-lb. gross weight of which some 10,000 lbs. will be payload for a 200-mile range, and is expected to cruise at 160 mph. A DC-3 replacement for short haul, it would sell at about the price of a Convair 340. Meanwhile, Sikorsky is preparing two smaller helicopters, a twin-engine S-56 and a single-engine S-58.

ALFRED S. KOCH, head of CAA's International Region and formerly head of the CAA safety office, has replaced Ernest S. Hensley as director of the CAA's office of aviation safety. Hensley requested transfer to Honolulu as assistant regional administrator there. Frank C. Stone succeeded Koch in his old position.

TEXAS PRIVATE FLIERS gathered recently at 8,000-ft. high Eagle Nest, New Mexico, for a weekend "fly-in" with Bob LeSage host at an annual barbecue for them. . . . **OVER 400 AIRPLANES WILL TAKE PART IN THE TEXAS AIR TOUR** Oct. 10-17, largest state air tour in the country. It will cover 3,000 miles and 40 stops deep in the heart of. It starts at Temple, ends at Corpus Christi.

BEECHCRAFT OWNERS REUNION was to be staged at Dayton over Labor Day Weedend during the National Aircraft Show, Beech mailing invites to owners of 4,000 Beechcrafts to take part. A large list of prizes was ready for participants.

MAX CONRAD'S 14,500-MILE LIGHTPLANE FLIGHT TO ALL 48 STATE CAPITALS began in mid-August as part of the celebration of the 50th anniversary of powered flight. Flight was sponsored by the national celebration committee, Air Transport Association, CAP, CAA, U. S. Jaycees and AIA.

MORE ECONOMIZING BY CAA will eliminate numerous low frequency range stations. . . . **ADMIRAL JOHN H. TOWERS,** retired, has been elected president of Flight Safety Foundation of which Jerome Lederer is director and founder. . . . **WALTER B. POWELL** has resigned as sales manager of McCauley Industrial Corp., General Manager Sidney M. Gamsu taking over his duties. Walt is at home at 4564 Pennlyn Ave., Dayton.

EXECUTIVE AIRCRAFT OWNERS AND CREWS AND FIXED-BASE OPERATORS from many sections will attend a Pratt & Whitney engine maintenance and operation forum at Southwest Airmotive on Love Field in Dallas Oct. 14. The day-

(Continued on page 29)

ELECTRONIC BRAINS FOR AIR FORCE BRAWN

U. S. fighting aircraft, like this six-jet B-47, fly with Collins navigation or communications equipment. Airforce veterans remember Collins as the name on the first automatically tuned radio equipment used in World War II. Today, Collins plants in Cedar Rapids, Dallas and Burbank are hard at work filling orders that put Collins units on the latest military aircraft.

DESIGNERS AND MANUFACTURERS OF ADVANCED ELECTRONIC EQUIPMENT

- *The Integrated Flight System*
- *Airborne Transmitters and Receivers*
- *Ground Station Communications Equipment*
- *Electronic Navigational Equipment*
- *Automatic Flight Control Equipment*

COLLINS RADIO COMPANY **Cedar Rapids, Iowa**

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Facts *and Figures!..*

Figure:

If she'd slipped teacher an apple with a dynamite cap in it, well, that'd a been somewhat different. But when Tanna Ladd has to sit in the corner at school for an almost-nearly-normal thing like flirting with a pilot, we call it Persecution! This remorse-wracked bundle of learning is blonde, blue-eyed, 116 lbs., 5′5″, and 19.

Fact:

—And, speaking of learning, you can learn a lot about the condition of your airplane with the amazing new Bendix Ignition Analyzer, aviation's newest electronic trouble-spotter. In the shop or in the air, the Bendix Ignition Analyzer means important savings in maintenance time and money. Write for literature and price.

Southwest Airmotive COMPANY
LOVE FIELD | DALLAS

Just among ourselves

OPTIMISM

WE think there's significance well worth noting in several new commercial aviation activities scattered about the country. These developments have more than passing news value—they reflect continuing faith and determination in useful airplanes.

We refer to activities such as the two interesting and newly-designed twin-engine lightplanes being readied for the market by Cessna and Piper. These are major undertakings and both hold tremendous possibilities for aircraft users, operators, manufacturers and suppliers alike. We also refer to the two interesting twin-engine conversions of the Navion design, Jack Riley's and the White Brothers' WE-1. Both of these projects represent considerable investments and even more courage and determination.

In our mind, too, is still another new project which symbolizes worthwhile optimism and initiative—Bill Lear's modifications to the familiar Lodestar. This one began as another of Bill's many personal interests in aviation but is fast becoming a large-scale project with far-reaching possibilities. The latest is that Lear has invested heavily in an operation aimed at pressurizing Lodestars for high-altitude operating efficiencies and comforts. He has hired some outstanding young engineers and technicians; he's now running out of space and will probably construct a new hangar on Clover Field at Santa Monica. In the end, corporate users of aircraft will have an excellent transport and aviation in general will profit from one man's faith and devotion to the proposition of doing something better than the rest of the pack.

So it goes throughout the projects mentioned—somebody's optimism in each case launched a worthwhile undertaking which will create even newer and more far-reaching aviation opportunities as commercial aviation development gathers momentum.

There is revived optimism in the development of smaller planes, too. Mooney Aircraft last month flew its new 4-place Model 20 for the first time and initial performance spread grins over the beaming faces of Al Mooney and Bill Taylor and their factory crew. This new design is especially significant in that it successfully utilizes, for the first time in personal airplanes, the low-drag laminar-flow airfoil. Mooney's aim is high performance through aerodynamic refinements rather than with stepped-up horsepower—he's expecting a cruising speed in the neighborhood of 160 mph. with a comfortable and relatively low-cost 4-place airplane having a useful load of about 1,000 lbs. but with a Continental engine rated at only 145 hp. That's genuine and outstanding progress in personal aircraft design.

All these new activities and others which can be expected soon are reassuring. They point to a brighter future for commercial aviation. ★ ★ ★

WHY HAVE A STRONG NATA?

WE recently attended a state chapter meeting of the National Aviation Trades Association, which represents that broad field of aviation known as fixed-base or airport service operators. Like all the other state NATA meetings we've attended for many years, this one proved that a few stalwarts have to carry the load for the majority. So long as the majority of operators sit back and force a few farsighted individuals to run the ball they can never expect the strong organization their field of aviation enterprise should have.

It is difficult to understand why so many successful operators drag their feet with an idea that they don't have too many problems demanding representation in Washington. There's nothing more typically American than for all the various economic groups to band together and try to toot their own horn and promote their own interests. We read the other day where even the fishing tackle people formed an organization. It seems the fishermen are getting more numerous and the fish are declining. So they band together to work on the problem.

NATA is one of the most basic aviation trade groups in the nation, and should be one of the strongest. It has so many important jobs to do, so many watch-dog assignments to handle, particularly in these days of every-man-for-himself and every-economic-group-for-itself, strong national organization is a prerequisite to permanent health and prosperity.

A lot of operators apparently believe that the consumer groups will do their work for them. It is true that there are many areas of mutual interest between the consumer and the airport service operator. But if an airplane owner gets tired of being crowded off busy airports, unreasonably taxed or overcharged by local, state or Federal agencies, he's more apt to sell his plane and quit flying. The airplane owner is the goose that lays the golden eggs for the operator. His problems can not be ignored by the operator.

There are areas wherein the best interests of the operators run counter to those propounded by certain consumer groups. One national organization is apparently trying to "police" the industry and with its propaganda methods can and does influence a lot of thinking that cuts across the grain of the airport service operator. So it's the sheerest kind of folly to sit back and figure that the pilots and owners will fight the operators' battles.

With all branches of government seeking new tax and fee sources, with the decimation of the Civil Aeronautics Administration which first of all means the curtailment of services to little aviation and with the ever-increasing congestion of air traffic and the threat of user charges on the Federal airways system, with the growing philosophy that airports should make lots of money for the municipalities,

(Continued on page 38)

The Most Trusted Name in Ignition

safeguards every component part of your ignition system

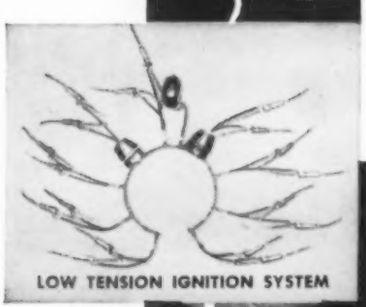
From Lindbergh's history-making flight to today's record breaking jets, Bendix ignition equipment has played a spectacular part in aviation progress.

While Bendix reputation in ignition has been spotlighted by scores of important engineering firsts, the industry's wide acceptance of Bendix ignition equipment has been built largely on the solid foundation of product excellence in every component part.

Just as a chain is no stronger than its weakest link, dependable ignition is the result of components designed and manufactured for unfailing efficiency.

That's why it pays to insist on Bendix ignition components for every part of your ignition system. Whether your requirement is for a better electrical connector, a complete new ignition system, or the famous Bendix Ignition Analyzer, you can be sure of quality performance when the good name of Bendix safeguards the reputation of every individual ignition product.

Why not consult our sales department for details?



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AVIATION PRODUCTS

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Aero-Commander. Seats 6. Powered by two 260-h.p. Lycoming air-cooled, geared engines.

Grumman Widgeon Conversion. Amphibious flying "office" featuring 260-h.p. air-cooled, geared engines by Lycoming.

Safest "offices" over earth

You are now looking at the "wings" carrying America into a great new era of safe, economical executive transportation. Each of these twin-engine, multi-passenger planes is powered by Lycoming . . . long a leader in the up-to-500-h.p. engine field. Each has the double dependability of *two* air-cooled Lycoming engines—so powerful that the planes can safely fly and land with a full load *on one engine alone.*

To fly any time, any place . . . these are the safest "offices" *over* earth . . . the soundest investments in executive aircraft *on* earth. *For further information, write us on your letterhead.*

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LOOK TO LYCOMING

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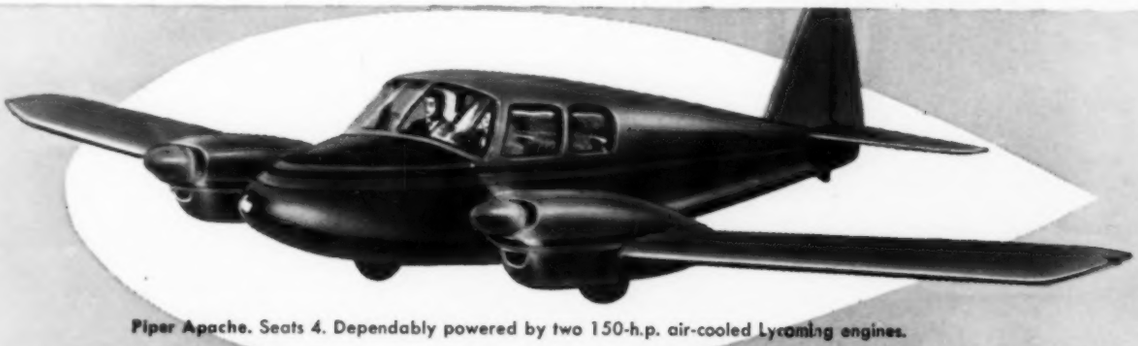
Air-Cooled Engines for Aircraft and Industrial Uses. Precision-and-Volume Machine Parts. Gray-Iron Castings. Steel-Plate Fabrication



Piper Apache. Seats 4. Dependably powered by two 150-h.p. air-cooled Lycoming engines.

Riley Twin Navien Conversion. 4-place executive plane powered by two 150-h.p. air-cooled Lycoming engines.

First Flight

THE beautiful lines of the airplane pictured on these pages all add up to performance. For a year they have been nothing more than a designer's dream and an experimental shop's hangar queen, because it has been that long since the design was first announced on these pages. But last month the designer, Al Mooney, saw his performance dream come true when Bill Taylor, Mooney Aircraft's general manager and test pilot, took the new 4-place Mooney Model

Clean lines and laminar-flow wing are emphasized in these first flight and ground pictures of the new 4-place Mooney Model 20. Note wide tread of main gear, small frontal area and squarish exhaust augmentor tubes for cooling.
—(FLIGHT MAGAZINE Photos except Mooney Aircraft close-ups.)

Here's Mooney General Manager Bill Taylor at controls just before the first flight. Expected to sell below $11,000, Mooney 4-place has 145-hp. Continental engine, will top 176 mph., land at 45. Empty weight is about 1,200 lbs. fully equipped, useful load about 1,000 lbs., and gross weight 2,200 lbs. Range is over 600 mi. with two 15-gal. wing tanks. Landing gear doors have been installed.
—(Mooney Aircraft Photo.)

20 "Scotsman" into the air on its first flight at Kerrville, Texas.

"Looks like we're up there where we wanted to be with the performance figures," beamed Taylor as he stepped from the pretty little yellow prototype upon concluding the first flight.

Al had wanted to be inside with him but was anchored to the ground by a plaster cast on a broken leg, snapped six months ago when he slipped and fell on the polished floor of the National Airport terminal in Washington, D. C. Instead of flying, he was stretched out on the back seat of an auto parked by the side of the runway when Bill took the Twenty up alone.

"It sure looked great from here," Mooney agreed in reply to Taylor and a handful of shop people and friends gathered for the 7 a. m. hop. Greatest interest was in the prototype's

(Continued on page 34)

Model 20's 35-ft. span features the picture below, while at upper right it is shown closely resembling the Mooney M-18 single-seater. Tense audience at weighing-in, from left to right, are Designer Al Mooney, his leg in a cast; Test Pilot Bill Taylor, and W. L. (Mack) McMahon, vice president and tooling engineer.
—(FLIGHT MAGAZINE Photo below, others by Mooney Aircraft.)

Inside Passage to Alaska

This sales executive learned first-hand that a flight to Alaska can be easy and enjoyable

By LEE RENSHAW

NO matter how much you fly, or where you fly, it seems you always build up certain ideas about particular areas being exceptionally fine flying country and others being difficult, when, as a matter of fact, it's all according to what you're used to. I always had an idea in the back of my mind that flying to Alaska would be really tough, full of weather and high altitudes. But last June I found to my amazement that flying to Alaska was as easy as flying to any point in the U. S. and far simpler and safer than a lot of trips we've made in this country.

Our flight to Alaska was a routine business trip. Fred Roscoe, Cessna's northwestern regional sales manager, and I had to make calls on all Cessna distributors in the Pacific Northwest, British Columbia and Alaska. It was also Fred's first trip so far north and he had the same impression as I did, that the trip to the land of the midnight sun would be a bit on the rugged side. It was so normal and routine, and business prospects so good, we plan to go again real soon before winter sets in.

On June 7 we piled into a new Cessna 180 with our brief cases and one suit case apiece, dressed in conventional business clothes as if we were heading out for a typical domestic business trip. Thirteen days and 8,000 miles later we were back home, singing the praises of Canada and Alaska, and wondering why so many businessmen pilots like ourselves have not found out what an easy trip it is from the States to Alaska by way of the Alcan Highway.

Our first stop out of Wichita was Clinton Aviation, Denver. Thence to Boise to visit the Aircraft Service Company, then up along the Snake River to Spokane, where we visited our distributor, John P. Mifflin. From Spokane we made calls on Herm Gallaher of Okanagan Skyways and flew on to Seattle to visit with Howard Smith of Smith Aviation on Renton Field, thence to see Ernie Helms of Skyways, Inc., at Troutdale Airport in Portland. With most of our domestic calls completed we were ready to head northward into Canada.

Simple Border Clearance

Clearing into or out of Canada is a very simple procedure. Off the ground at Seattle we picked up the microphone and filed our flight plan into Vancouver, our port of entry, giving our ETA as close as possible. We asked that Canadian customs be advised and that's all there was to it. In the 180 the flight from Seattle to Vancouver along Puget Sound, over Everett and Bellingham, is only an hour and over picturesque country. The control tower at Vancouver directed us to transient parking where a "follow-me" jeep picked up our luggage and took us to Canadian customs. In a matter of minutes we were cleared and met our British Columbia distributor, Al Michaud. One of the most impressive sights at Vancouver is the tremendous amount of floatplane activity, which serves scores of little island communities isolated from civilization and trade except by boat or floatplane. We also got a good look at the de Havilland Comet in Vancouver — an RCAF air transport model, which impressed us very much due to its cleanness of design. It is without a doubt one of the most beautiful transport aircraft we have ever seen.

Next morning we flew up the Fraser River about fifty miles, then directly across the mountains to Kelowna for a flight demonstration to a prospect. Here we gassed up the 180 with buckets and chamois skin — our first experience with this type of refueling. A little patience, the use of a few muscles and in short order we were gassed up.

Departing Kelowna at noon we flew northwestward to intersect the airway leading into Dog Creek, then on to Prince George, British Columbia. On this leg of the flight we flew at about 7,000 feet above sea level which gave us plenty of clearance over the mountains. We intercepted our airway at Ashcroft, as planned, and from then on we flew airways up the Fraser River Valley, on up to Dog Creek, then northward towards William Lake, Quesnel, and finally into Prince George. The Fraser River splits British Columbia in half and this part of our route afforded the most beautiful scenery of our entire trip. From Prince George to Fort St. John, where you pick up the Alcan Highway, the highest point was Pine Pass at 2,850 feet above sea level! Just for kicks we flew this segment at only 3,000 feet to really see the beauty of the country below us.

Most airmen flying up from the States would probably enter Canada below Calgary and thus avoid some of the moderate mountain flying we did from Vancouver to the Alaska Highway at St. John. But even though our business carried us to the Pacific Northwest prior to entering Canada,

The author is shown at right going over a map of some of the territory his Alaskan flight covered. Fuel prices varied from 40 to 70 cents an imperial gallon (5 quarts). Cessna 180 averaged 152 mph. ground speed going up and 168 mph. ground speed returning to Wichita. Fuel consumption averaged 11 gph. Food in Alaska averaged $2 for breakfast, $2.50 to $3.50 for lunch and $4 up for dinner. Hotels were $4 in Canada and $7 in Alaska. The author sketched his route on the map below.

the flying we did was strictly routine with no high passes, no lack of radio communications and no complications of any kind.

Stick to the Highway!

Arriving over Fort St. John about 3 p. m. we radioed in on Canadian low frequency (no vhf up there) and were advised that if we had plenty of fuel on board they would clear us directly on to Fort Nelson, via the Alaska Highway. Upon checking we found ample fuel, thanked them very much and turned onto the seemingly endless highway which we never let out of our sight until arrival at Anchorage.

It's a real thrill to start flying down the highway, knowing it will be your only sign of civilization for 2,000 miles. But after the first hour that too, became routine, except for the satisfaction of placing your maps atop the instrument panel and sitting back to enjoy the scenery with no navigating to bother with. And the surprise of surprises to us was that ground elevation all the way up the highway never exceeded 3,500 feet above sea level.

The whole secret to the flight was — stick to the highway and follow Canadian instructions. Everything is flight plan and they won't clear you unless VFR is at least 2,000 feet and five miles. Only the dopes try to cut across the muskeg to steal a few miles. So we stuck to the highway. There were plenty of airports, plenty of settlements, and the highway was a permanent ribbon of emergency landing space if needed.

Between St. John and Fort Nelson

(Continued on page 46)

Modifications visible in this flight view of the LearStar include new cowlings, exhaust augmentor system, squared wing and stabilizer tips, sealed wing slots, retractable tail wheel and removal of external flap tracks. Others are being made and cabin pressurization is now being engineered. —(Lear Photo.)

Lear Modification Center

With fast, pressurized Lodestar conversion, Bill Lear opens shop for executive fliers

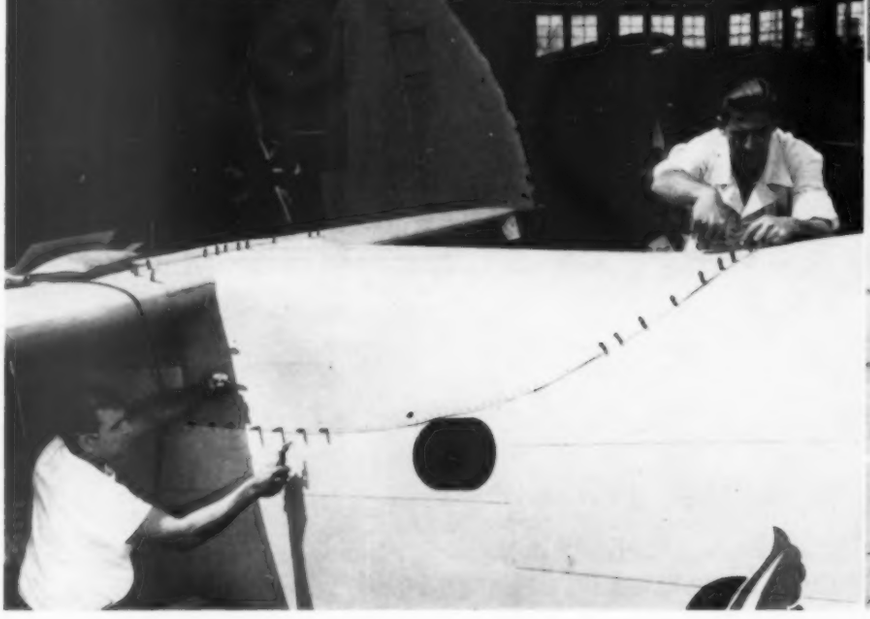
By TOM ASHLEY

THE talk these days around the pilot lounges and aircraft service ramps where executive transport pilots gather usually concerns the need for more performance. More often than not, this leads to mention of a certain Lockheed Lodestar, N9991F by number—more widely known as "Bill Lear's Lodestar" or simply as the "LearStar." William P. Lear, the man who made aircraft radio and autopilot history, has well earned all the talk which concerns his Lockheed, for he has made it the fastest Lodestar in the world. It will cruise above 265 mph. He has had it up to 300 mph. in level-flight trials.

What interests many pilots as much as this airplane's performance is the word that Bill Lear is going to make a business out of his Lodestar improvements. He has set up shop—an executive aircraft modification and service center in a hangar at Clover Field in Santa Monica, California.

Right now the major item of interest in the LearStar undertaking is an intensive engineering project aimed

Among latest of many changes in the LearStar are the big rear fuselage fairing and the retractable tail wheel shown below. The fairing smooths out the Lodestar's original hump at the stabilizer. Much experimentation remains to be completed with the conversion. —(Lear Photos.)



at pressurizing Lodestars. Lear is convinced that the demand for pressurized cabins is great enough to warrant the considerable investment necessary to solve all the problems involved in this accomplishment. More than 250 Lodestars are being operated in corporate flying today and more than a few of their owners would be prime prospects for pressurization.

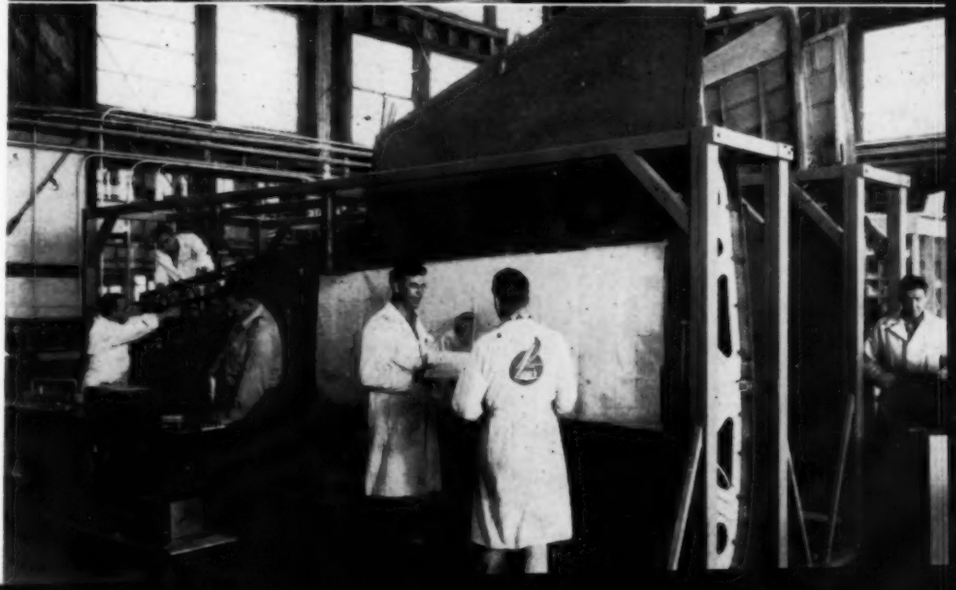
Details of the LearStar project will not be complete for a few months. Many modifications have already been perfected but some are undergoing constant change. This has been going on for 18 months, with Lear using the airplane all the while for company transportation. High-water mark was reached during our visit to the Lear service center last month, when the LearStar was clocked at 300 mph. in two separate speed runs over Santa Monica Bay at 18,000 ft., using just under 60 per cent of METO (maximum except for take-off) power. At ordinary cruising levels of 9,000 to 11,000 ft., it is described as having a cruising speed of close to 280 mph. using economical power settings. New fuel capacity is expected to offer a range exceeding 2,500 miles.

Modifications already made include new cowlings, new augmentor-type exhaust system, removal of trailing-edge "bat wings" and external flap tracks, closing of wing slots, squared wing and stabilizer tips, increased stabilizer angle of incidence, new and more streamlined windshield, flush windows, flush air intakes and retractable smaller main wheels, and retractable tail wheel. New modifications in the mill include wheel-well doors, wing-tip tanks, new wing leading edge, smoother fuselage lines and others, including the major undertaking of cabin pressurization.

Gordon Israel, in aviation since 1928, prominent in the National Air Races as a designer and pilot, and until recently with Grumman Aircraft Engineering Corporation as assistant chief engineer in charge of experimental design, has joined Lear, Inc., as chief aircraft engineer. Gordon will work with the LearStar project and will also be active in research and development of automatic flight controls involving special aerodynamic flight characteristics.

Chief engineer of the Lear Aircraft Service Division is Wayne Goldie, whose most recent activity was with a group which engineered the first pressurized cabin perfected for a Douglas A-26 conversion, this one belonging to H. Lutcher Brown, paper mill executive of Monroe, Louisiana. Wayne had 18 men in his department at the time of our visit, and it was being expanded. The Aircraft Service Division had then grown from 87 employes in July to 134 in early August. This Lear division has seven depart-

(Continued on page 32)



Shop views show busy pace at Lear hangar on Clover Field at Santa Monica. Facilities are being expanded with complete modification and service operations conducted by two daily shifts and a weekend shift.

—(Lear Photos.)

Bell Model 47 under cover at left is shown on the make-shift flight deck of the old Canadian icebreaker, "C. D. Howe." No storage was available so complete cover was necessary to protect the machine against icing during bad weather. New icebreaker, the "d'Iberville," shown on opposite page, has hangar for storage. —(Canadian National Film Board Photo.)

Ice Patrol by Copter

THREE Bell helicopters are developing their sea legs aboard the Canadian Department of Transport's two Arctic icebreakers, the CGS C. D. Howe and the new CGS d'Iberville. As far back as 1876, the Canadian government has operated icebreakers in the Arctic and along the eastern coast of Canada. The growing prominence of the mineral-rich Arctic region has prompted the construction of a long line of rugged, self-reliant vessels, capable of sailing in some of the most hazardous waters of the world.

Since the Department of Transport purchased their first Model 47D-1 helicopter in March, 1951, Canadian Arctic navigators have found the helicopter to be one of the most valuable aids to trips through ice-choked waters.

During the Bell helicopter's first Arctic cruise aboard the icebreaker "C. D. Howe," the versatile aircraft more than earned its passage by performing a multitude of assignments faster and more efficiently than ever before possible. Captain A. Chouinard, the ship's master, credits the helicopter with enabling the vessel to increase her operations appreciably.

The "C. D. Howe's" 10,000-mile annual voyage consists of servicing Canadian Arctic weather and isophere stations, and the many northern posts where meteorologists, radio technicians, scientists and other government officials make their homes in a world of ice.

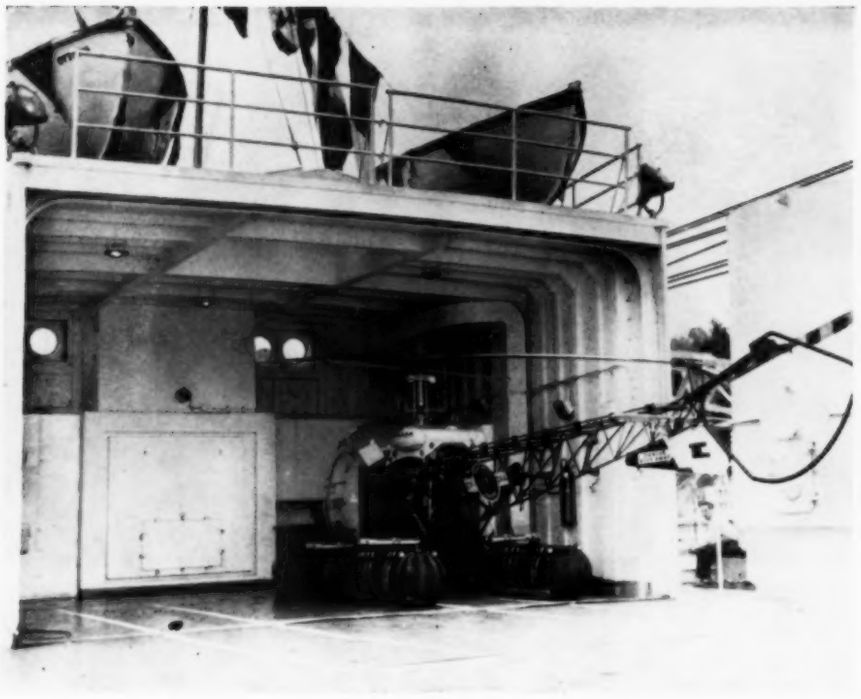
Time is of the utmost importance on Arctic missions because of the constant threat of an early freeze up. By using the helicopter as a ship-to-shore taxi, doctors and officials can make their routine calls, and also handle emergencies, in the minimum period of time allocated for each stop on the icebreaker's tight schedule.

Whenever the powerful "C. D. Howe" became icebound, the ship's first officer would accompany Pilot Jack Charleson as an observer to chart a path out of the ice. Valuable time and fuel was saved by using the helicopter in this manner.

In addition to ice patrols and taxiing, other important missions assigned to the Bell helicopters are aerial photography, surveying and rescue work.

As the network of Arctic stations stretched farther and farther north, plans were made to build a second icebreaker. The new ship, recently commissioned the CGS d'Iberville, was built by the Davie Shipbuilding and Repairing Co., Ltd., and ranks first in her class in size, speed and modern design in the western hemisphere.

Incorporated into the 3,055-ton ves-



Icebreaker "d'Iberville" was designed to accommodate two helicopters. Air view above shows flight deck with hangar. Close-up of hangar at right shows one of ship's two Bells in the hangar, which can be sealed from the weather and is heated. Small dolly wheels are hand-operated into position to permit easy handling on deck.
—(Bell Aircraft Photos.)

sel's basic design is a flight deck for the ship's two Model 47D-1 helicopters, purchased by the department in December, 1952. (The "C. D. Howe's" fantail flight deck had to be added.) Immediately adjoining the "d'Iberville's" heliport is a heated hangar, equipped with an up-to-date workshop where daily checks can be made.

Following the new icebreaker's shake-down cruise to England, where the vessel participated in the recent coronation naval review, the CGS d'Iberville returned to Montreal to prepare for her maiden trip to the Arctic.

When the ship sailed the end of July for the scheduled 12,000-mile cruise, the two Bell helicopters were aboard the new icebreaker, along with a 75-man crew, 50 passengers and 350 tons of supplies.

Lionel Chevrier, Canadian minister of transport, believes that the "d'Iberville" operations may open up a "rich vista of possibilities" to scientists and prospectors alike.

Although Arctic flying is now commonplace, the new icebreaker is expected to travel farther north than the "C. D. Howe" and many of the Bell helicopter flights will be over territory which is virtually unknown to man.

By mid-September the CGS d'Iberville will have completed her life-sustaining calls throughout the northland, and will return to her home port of Quebec. Armed with the two helicopters, the ship will join the "C. D. Howe" in freeing ice-locked harbors, which are important to Eastern Canada's maritime economy. ★ ★ ★

Despite small dimensions of flight deck, two Bell 47's are operated from it with room to spare. This view shows one of the Bells landing while the other is in the hangar, its tail rotor being in the foreground.
—(Bell Aircraft Photo.)

Scoop beneath rear fuselage is for AiResearch cabin pressurization equipment in this executive Douglas A-26 converted by Grand Central Aircraft at Glendale for H. Lutcher Brown of Monroe, Louisiana. At 17,500-ft. cruising altitude, cabin altitude is 7,000 ft.
—(Grand Central Aircraft Photo.)

Pressurized Cabin for Executives

Here's the first pressurized 300-mph. conversion for business flying—a Douglas A-26

THE object of affection for many executive pilots has been the 300-mph. Douglas A-26 ever since it became surplus following the war. About 30 A-26's have been converted for corporation flying and they are satisfying the fast transport needs of their owners in every case, although the A-26 admittedly needs more cabin roominess and most importantly cabin pressurization. Flying at 300 mph. can be extremely uncomfortable at low levels in bumpy air.

Now comes the first converted Douglas A-26 to be pressurized. It is shown above and it belongs to H. Lutcher Brown, president of the Brown Paper Mill of Monroe, Louisiana. Mr. Brown and his pilot, Colonel Walter G. Clarke, know their flying needs down to the last technical detail, having operated a long list of outstanding business planes. To them, speed is of little value if they can't utilize it, and cabin pressurization is the key to 300-mph. transportation. It allows them to fly in smooth air most of the time, to avoid much of the weather for en-route flying, and to take advantage of all the aerodynamic and power plant efficiency which is gained with altitude.

3,400-Mile Range

So they have had an A-26 pressurized. Here are the specifications for their history-making conversion:

Top Speed, over 400 mph. at 17,500 ft.

Cruising Speed, 340 mph. at 17,500 ft.

Cabin Working Pressure, 3.41 lbs. per sq. in.

Power Plants, two Pratt & Whitney R-2800-C83-AM3 engines equipped with reversible Hamilton Standard propellers. These installations are described as being the same as used on Douglas DC-6 airliners.

Range, 3,400 miles.

Seating, six passengers and crew, with four fully-reclining chairs.

Pressurization Equipment, essentially the same AiResearch equipment used by the airlines on Convairs.

Communications and Navigation Equipment, Bendix HF transceiver, 2 Bendix ADF's with iron core loops, 1 Collins VHF transmitter and receiver, 1 Collins omni with glide slope receiver, Sperry A-12 autopilot with approach coupler, and Sperry Zero Reader with C-2 Gyrosyn compass.

Conversion of the Brown Paper Mill A-26 was a large-scale project from the beginning. Around Los Angeles, it is said that the airplane represents a million-dollar investment. If so, it also represents the top dollar among all postwar conversions.

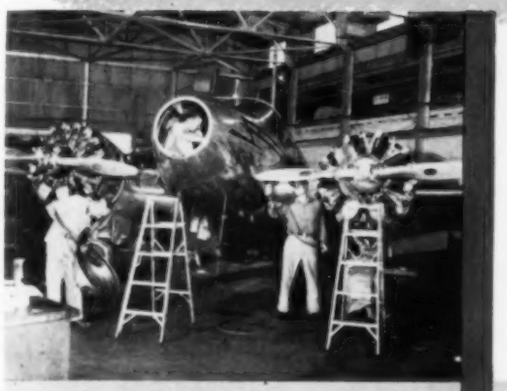
Special Engineering

Such projects as this involve a great amount of engineering. Grand Central Aircraft Co., at Glendale, California, which did the conversion, was anxious to get it started at the outset but no suitable engineer was then available to direct it. Months were spent by C. C. Moseley and his associates contacting aircraft companies and independent engineering firms. But all were snowed under with military commitments and it appeared that the A-26 pressurization conversion would have to be abandoned.

Fortunately, P. C. Medina showed up in California. He had been with Glenn L. Martin Company for 17 years, intimately associated with the designing of several prominent Martin airplanes. After considerable negotiations, Medina accepted the position of project engineer for the A-26 conversion, obtaining a leave of absence from Martin. Offices and hangar space were provided by Grand Central and Medina organized an engineering group, with W. W. Reaser, chief air conditioning engineer of the Douglas Aircraft Co.,

(Continued on page 32)

We Insist on the BEST!



The exacting standards and precise specifications established by the J. D. Reed Company is assurance of the finest in workmanship and the highest quality in materials, products and accessories.

Through our twenty-two years of service to the flying public we have insisted on perfection in every detail, whether in the work we perform or in the products we sell.

● Here at the J. D. Reed Company One-Stop Service Center we have the craftsmen and the equipment to do any job from periodic inspections to major overhauls. Further, we do the job the way you want it — promptly and dependably. All component parts are restored to original factory standards.

● We will also make any type of special installation — long-range fuel tanks, custom interiors, custom radio installations, special instrument panels and many other modifications.

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MUNICIPAL AIRPORT
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for the Solution of Your Problems

In aircraft service, maintenance and overhaul there is no substitute for EXPERIENCE

EXPERIENCE

It's a magic quality. It is the difference between mechanical perfection and failure. The mechanics and technical personnel of the Certified Beechcraft Service Stations have spent many years in shop and factory training to gain the required experience in the specialized field of aircraft service, maintenance and overhaul.

EXPERIENCE

Beechcraft owners and operators over the nation have also learned that this experience counts through time and dollar savings. This know how plus the right tools and factory authorized parts means that the Certified Beechcraft Service Station is the place to go for any requirement in aviation. Consult any of the firms listed below and you will know why experience counts so much.

To obtain the best service for your Beechcraft visit the Certified Beechcraft Service Stations listed.

AIRCRAFTSMEN, INC.
Will Rogers Field
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ATLANTIC AVIATION CORP.
Teterboro Airport, (25 minutes from Times Square)
Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

BUTLER CO., AVIATION DIVISION
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

HUNTER FLYING SERVICE, INC.
Hunter Field, Cedar Rapids, Iowa

ROD MORE AVIATION SERVICES
Cuddihy Field, P. O. Box 556,
Corpus Christi, Texas

OHIO AVIATION COMPANY
Dayton Municipal Airport, Vandalia, Ohio

PACIFIC AIRCRAFT SALES CO.
Oakland Airport, Oakland, California

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

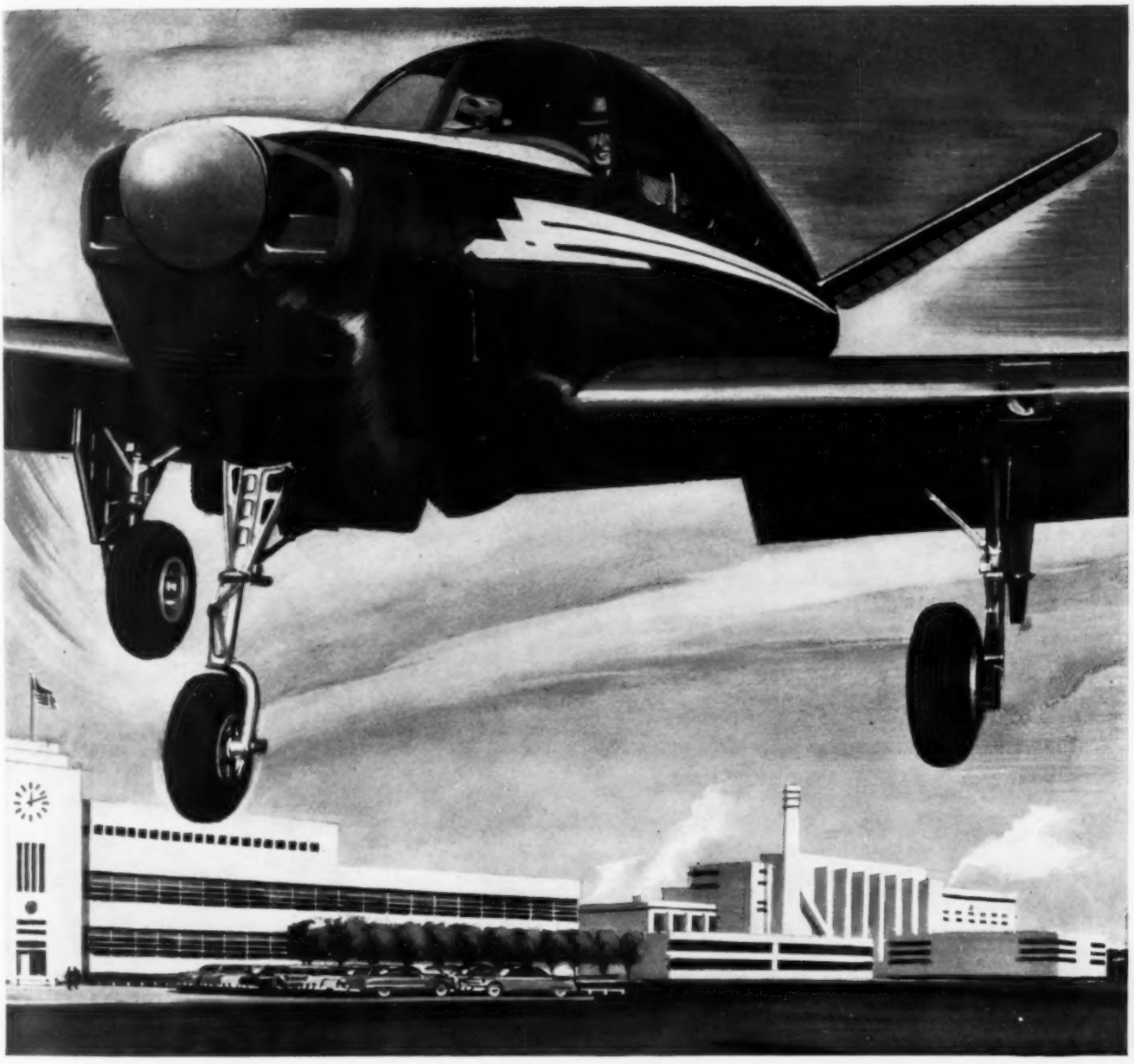
J. D. REED CO., INC.
Municipal Airport, Houston, Texas

TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 5, Municipal Airport, Tulsa, Oklahoma

WINGS, INCORPORATED
Wings Field, Ambler, Pennsylvania
Philadelphia International Airport, Philadelphia, Pa.



This man is landing a contract

At 12:15 he learned about a sales opportunity—400 miles away.

At 2:45 he's on the spot via his company-owned Beechcraft Bonanza ready to do business.

You may say this is an unusual man, using unique methods. Just the opposite. Thousands of executives use Beechcrafts daily in just such fashion. They profit from anytime mobility of action, cut travel-time as much as 75 per cent, are away from their desks *less*, see their families *more*. For typical costs and operating data, call your Beechcraft distributor or write:

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U. S. Air Force T-34A is the world's most economical military trainer. Adaptation of the versatile, reliable Beechcraft Bonanza.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

Leadership Demands Constant Achievement

Built to get there NOW!

F-94C Starfire combines defense with economy!

No fighter-interceptor can get into the air quicker, and none can climb faster than the Lockheed F-94C Starfire. This new all-weather interceptor for the U.S. Air Force is now defending key American cities from possible air attack. The Starfire was designed to reach target altitude in record time.

Combining greater flight availability and lower maintenance costs with superlative performance, the F-94C Starfire actually delivers more defense for your dollar.

Lockheed

AIRCRAFT CORPORATION

BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA

Look to Lockheed for Leadership

Lockheed

Builds Plane No. 25,000 and Jet No. 5,000

Lockheed airplane Number 25,000 rolled off the production lines recently in Lockheed's Burbank, California, plant. Significantly, it was an F-94C Starfire Jet Interceptor, newest member of Lockheed's pioneering jet aircraft family. Later, another Lockheed Starfire became the 5,000th Lockheed jet to be built.

There's a reason for the quantity production of F-94C Starfires. Here's a military jet that does an outstanding job and saves money, too.

Here's How It Does It

Economy is important with the Air Force, and here's how the Starfire helps on the budget:

An economical airplane is one that performs its mission with greatest efficiency and offers maximum availability on the ready line. Maximum time between servicings means *lower maintenance costs*. More important, it means *fewer planes are needed*. The U.S.A.F. provides both types of economy with the Starfire.

2-Man Team Helps

Since the Lockheed Starfire is a 2-place interceptor, it utilizes the cooperative efficiency of a 2-man team to compute the tactical problem and perform all other split-second operations of intercepting an enemy at 600-mph-plus speeds.

This all-weather interceptor is equipped with automatic electronic controls — Hughes Radar System, Westinghouse Automatic Pilot, Sperry Zero Reader—and other advanced devices, making it very nearly an automatic airplane.

A "Pilot's Airplane"

Reports coming in from the field indicate that Lockheed has again produced a "pilot's airplane." Air Force pilots like the Starfire and like to fly it. They find it simple to fly and rock-steady under actual instrument conditions.

Here is the happy combination of 4 important factors in one reliable airplane: (1) Superlative performance — (2) Easy maintenance — (3) Pilot popularity — (4) More defense for your dollar.

AIR REPORT

(Continued from page 10)

long program includes talks by Pratt & Whitney factory experts, questions and answers, and a luncheon and sundown hangar flying party with Southwest as host. Morris Triggs of Pratt & Whitney is in charge of arrangements. A cutaway J42 Turbo Wasp jet will be on static display.

CLARENCE I. RICE has been named aviation sales manager for Bendix Radio Communications of Bendix Aviation Corp., according to Rear Admiral W. E. Cleaves (USN-Ret.), general sales manager. Bendix has also opened a new aviation sales office in Dallas at 3300 Love Field Drive in the Dallas Aero Service building. S. A. Meacham, formerly acting manager of aviation sales, heads the Dallas office as manager of a territory including Texas, Oklahoma, Kansas, Missouri, Arkansas and Louisiana.

CAPITOL AIRWAYS, INC., Beech distributor at Nashville, has added Jim Roach as service manager. He was Beech factory sales engineer at Wichita, Kansas, for the last five years. ★ ★ ★

Airmen's Calendar

Sept. 12-13—3rd Wisconsin Air Pageant, Curtiss-Wright Airport, Milwaukee.

Sept. 15—4th Annual Pratt & Whitney Engine Forum, Airwork Corp., Municipal Airport, Millville, N. J.

Sept. 19—1st Annual New Mexico Air Tour to Santa Fe.

Sept. 19—Canadian National Aircraft Show of Toronto Flying Club, Toronto.

Sept. 22-24—Aircraft Sparkplug and Ignition Conference, Champion Sparkplug Co., Toledo, Ohio.

Sept. 26-27—CAP Southwestern Regional Conference.

Sept. 27-29—International Northwest Aviation Council's 17th Annual Conference, Gearhart, Oregon.

Sept. 29-Oct. 3—SAE Aeronautic Meeting, Hotel Statler, Los Angeles.

Oct. 1-3—Air Reserve Association's Annual Convention, Augebilt Hotel, Orlando, Fla.

Oct. 10—England-Christchurch Air Race.

Oct. 10-17—Fifth Annual All-Texas Air Tour, 3,000 miles with 40 stops.

Oct. 14—Pratt & Whitney Engine Maintenance and Operation Forum, Southwest Airmotive, Love Field, Dallas.

25,000 Lockheeds in 21 Years

THE pretty girl in the picture above is Grace Boeckman, known as Lockheed's "Starfire Girl." She's helping Lockheed Vice President Burt Monesmith officially turn over to Col. Harrison Thyng of the Western Air Defense Force a new F-94C Starfire interceptor. As noted on the jet's radar-equipped, rocket-firing nose, this was the 25,000th Lockheed, representing 322 million pounds of planes put into the air by Lockheed in 21 years under the firm's present leaders (Lockheed's have been flying since 1912 when the company was started at San Francisco; it was reorganized in 1932 after 200 planes had been built).

Lockheed now builds 12 types of aircraft in California and Georgia; it is turning out $765,000,000 worth this year. ★ ★ ★

How to Get the Most Out of Your Cessna

Practically all Cessna owners today use their airplanes for the same reason — they need the most efficient and most flexible transportation available.

Hundreds of Cessna owners depend on the Authorized Cesna Service Stations listed below for their transportation needs — Authorized Cessna Service is their assurance that business planes are always ready to go, always in top condition for reliability, performance and comfort.

If you use your Cessna for important business needs, insist on Authorized Cessna Service at the Cessna Service Stations listed below. Their record for dependability and satisfaction is endorsed by the factory. Their long-established, factory-supervised Flat Rate Service guarantees every Cessna owner three important things:

1. **You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all your maintenance needs.**
2. **You get genuine Cessna parts and factory-trained workmanship.**
3. **You save money and time and we stand behind every job for your fullest satisfaction.**

More and more Cessna owners are recognizing the importance of these Flat Rate Service advantages.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

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15th Street Air Park
Tulsa, Oklahoma

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Dal-Tex Aviation, Inc.
Highland Park Airport, Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service
San Antonio International Airport
San Antonio, Texas

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

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AMERICA'S MOST VERSATILE, LOW-COST PLANE

TYPICAL CESSNA 170 LOAD: Two passengers, seven cases each holding 50 sample shoes. Total weight: 645 lbs!

From Four-Place Luxury Ship to Two Passengers Plus Cargo

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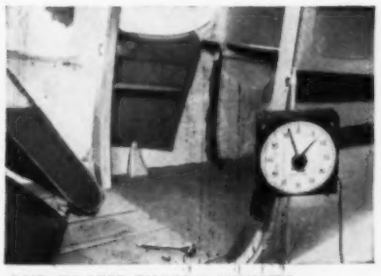
FIRST, UNSCREW 3 BOLTS located at the front of the seat.

NEXT, REMOVE SINGLE BOLT located at the rear of the seat.



AND IN LESS THAN 7 MINUTES, the seat is out, cabin is ready for cargo.

Here's a quick-change artist that's adaptable to any business assignment! The luxurious Cessna 170 carries 4 passengers in roomy comfort . . . or, it's a heavy-duty hauler, capable of speeding a quarter-ton of cargo to destination. The Cessna 170 can be fitted with skis, floats or cross-wind wheels, adapted for ambulance work, aerial photography, crop-spraying or blind-flight instruction . . . AND, IT'S AMERICA'S LOWEST-PRICED, 4-PLACE, ALL-METAL PLANE BY SEVERAL THOUSAND DOLLARS!

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Please send information on the new "Golden Year" Cessna
170_____ 180_____ 195_____

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(To insure prompt reply, please fill out coupon accurately.)

ALSO SEE: THE 150 M.P.H. CESSNA 180 AND LUXURIOUS 5-PLACE CESSNA 195.

We parked the Commander in front of AiResearch's office for a picture.

A Visit to AiResearch

ON a cross-country last month, we spent a Saturday afternoon at AiResearch Aviation Service Co. on Los Angeles Municipal Airport, one of the nation's busiest executive aircraft modification and service centers.

J. J. (Jack) O'Brien, manager, showed us his crowded shop. Inside were two Martin B-26's, a North American B-25 and other executive conversions. Outside waiting to get in was a brand-new Convair 340 just flown in by Cotton Jeter of United Gas at Shreveport, who is soon to add a second Convair to his big executive fleet. They'll have 20-place interiors.

Our visit was during a trip to the Coast and back in a new Aero Commander factory demonstrator with Sales Manager Carl Wootten and Vice President Ted Smith. We averaged 180 mph. ground speed going and 189 mph. ground speed returning—at only 23 gals. per hr. AiResearch is distributor for Aero Commanders.—T.A.

AiResearch Manager Jack O'Brien (left) and Aero Commander Designer Ted Smith have a look at the demonstrator. We got a shot of Cotton Jeter's new Convair 340 (below) which he bought unused at Convair from Philippine Air Lines for United Gas at Shreveport.

LEAR SERVICE

(Continued from page 21)

ments other than Goldie's—national service products, electronics, airframe, sheet metal, office management, flight operations and inspection, with a customer representative. Clyde Pangborn of round-the-world flight fame is chief of flight operations. When we visited, Clyde was abroad acquiring Lodestars. Gerry Ehle, who came from Lear's Grand Rapids (Michigan) operation, is hangar manager. Special assistant to Lear in this division is a young Texan, Ed Swearingen from San Antonio, an autopilot and electronics expert. Harry Graybill is in LearStar sales.

Lear's modification and service center is working two shifts daily, with a weekend shift filling in for 7-day-a-week operation. Six Lodestars were in the works, and a variety of other planes were being serviced in one department or another. ★ ★ ★

PRESSURIZED A-26

(Continued from page 24)

as consultant on pressurization and air conditioning. Others in the project were Wayne Goldie, mechanical engineer; Ted Grohs, prospectus engineer; W. Sharp, stress engineer; Landis Carr, shop supervisor, and others.

This group and its staff—all devoted to the A-26 job—had been working together for three months before actual construction began. L. H. Luckey Co., of Dallas, accomplished the early research on the feasibility of using the P. & W. R-2800C engines and Hamilton Standard reversible propellers. Bob Greenman, flight engineer for Mr. Brown, the A-26 owner, spent 10 months at Grand Central as expediter. C. C. Wall, Grand Central customer service man, coordinated the entire project.

In the conversion, some changes out of the ordinary were made. One of these involved the use of extremely large windows, including an observation dome enabling a 6-ft. man to stand upright in the passenger compartment. The rear bulkhead was moved so the passenger seats could be full reclining.

Rather than design special pressurization equipment, the project chief decided it would be best to use essentially the same AiResearch equipment which the airlines use.

When the job had been all wrapped up recently, Mr. Brown's pilot and flight engineer completed all flight tests without incident. They reported that the numerous changes had not in any way detracted from the A-26's excellent characteristics. ★ ★ ★

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Humble leads in commercial aviation gasoline sales in Texas. Both private pilots and pilots of executive planes have learned from experience that Humble Esso aviation gasolines are dependable—continuously improved to meet the requirements of modern airplanes. Skyways or highways—stop for service under the Humble sign!

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Use your Humble–Esso Aviation credit card at more than 600 airports across the nation.

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Folks, meet my Big Brother...

and, Great Scot, he's a true

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4-PLACE MODEL TWENTY

He's flying now, and proving
that he'll watch your pennies, too.
He's powered with 145 Continental, but
he'll **cruise** over 160 mph!

**He'll fly sweeter, be more efficient,
give you more for your dollar
than any 4-place personal
airplane in the air today.**

Reservations now being accepted for
first deliveries early in 1954.

MOONEY AIRCRAFT, INC.

Kerrville, Texas

FIRST FLIGHT

(Continued from page 17)

wing, which is the first on a personal airplane to successfully utilize high-speed low-drag laminar-flow airfoil sections. On some high-powered military planes, laminar-flow sections have proved excellent at high speeds. How would the new airfoils work on the little 4-place? Observers in the small gathering alongside the runway had seen for themselves how the airplane lifted into the air after an unusually short run and after a 20-min. flight, how smoothly Taylor had landed at a very low speed. But Taylor's first flight report was anxiously awaited just the same.

"It was wonderful," he told the designer, "especially in some stalls I tried. This wing has really got something wonderful."

It developed that the new 4-place has a stalling speed of less than 45 mph. although its top speed is above 170 mph. What Mooney's design aimed at was a top speed of 176 mph. at sea level and a 45-mph. landing speed, both at gross weight. He says he has hit this target. Other performance figures include a climb rate of more than 1,200 fpm. and a ceiling of 23,000 ft.

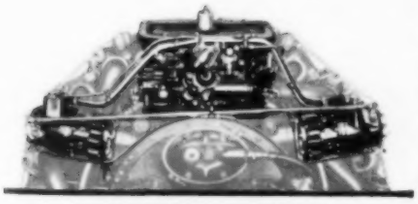
This performance is at a gross weight of 2,200 lbs., with an empty weight of 1,200 lbs. Useful load is about 1,000 lbs., or pilot and three passengers plus 80 lbs. of baggage plus full tanks for a range of more than 600 miles. Empty weight includes full equipment, in which are radio and controllable-pitch propeller.

Such performance is accomplished with a 145-hp. Continental engine. For the first flight, a controllable-pitch Sensenich Skyblade was used. Mooney says available propeller refinements will add more performance.

First flight indications were that Mooney's new 4-place will make aviation history with its high efficiency standards. For example, its design performance translates into about 23 miles per gallon of fuel at 140-mph. economy cruise on 50 per cent of rated power, and about 18 miles per gallon of fuel at 160 mph., using less than 70 per cent of power.

New economy standards are emphasized throughout the design. Its landing gear and flaps are manually operated to eliminate maintenance difficulties and to hold down on equipment costs. The retractable tricycle gear uses special rebound-controlled assemblies of rubber discs to eliminate costly air and oil struts. The Mooney M-18 "Wee Scotsman" has proved this gear's reliability and effectiveness

A great new airliner sets new performance standards!



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Lowers maintenance costs • Gives longer engine life • More engine power • Better altitude performance and engine acceleration • Easier starting • Shorter warm-up periods • More payload or more ton-miles per gallon.

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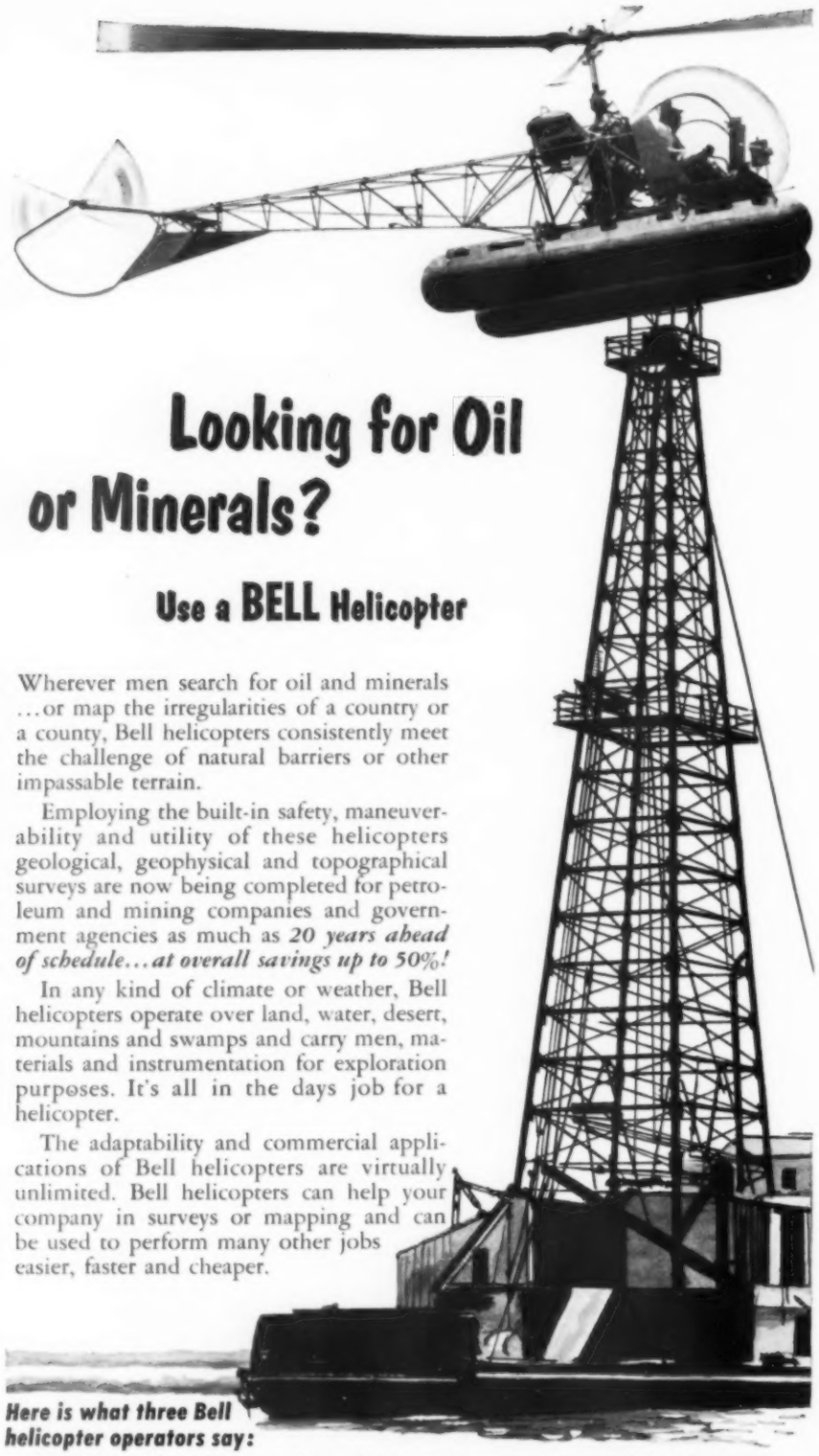
FIRST IN FUEL METERING — LEADER IN LANDING GEAR



Looking for Oil or Minerals?

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Wherever men search for oil and minerals ...or map the irregularities of a country or a county, Bell helicopters consistently meet the challenge of natural barriers or other impassable terrain.

Employing the built-in safety, maneuverability and utility of these helicopters geological, geophysical and topographical surveys are now being completed for petroleum and mining companies and government agencies as much as *20 years ahead of schedule... at overall savings up to 50%!*

In any kind of climate or weather, Bell helicopters operate over land, water, desert, mountains and swamps and carry men, materials and instrumentation for exploration purposes. It's all in the days job for a helicopter.

The adaptability and commercial applications of Bell helicopters are virtually unlimited. Bell helicopters can help your company in surveys or mapping and can be used to perform many other jobs easier, faster and cheaper.

Here is what three Bell helicopter operators say:

"After more than four years' experience, we find the Bell helicopter the most satisfactory from the standpoint of cost maintenance and availability."—ROBERT L. SUGGS, President, Petroleum-Bell Helicopters, Inc., Lafayette, La.

"The survey accomplished by Bell helicopters in one summer would take 20 years by any other method."—JAMES S. RICKLEFS, Rick Helicopters, Inc., Los Angeles, California.

"Allied's Bell helicopters have done mapping and survey work intheRockies and Alaska at savings of 50% and more over other methods."—ROY B. DAVID, Allied Helicopter Service. Tulsa, Oklahoma.

BELL Aircraft CORPORATION

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BELL AIRCRAFT CORPORATION

Texas Division

P. O. Box 482 Ft. Worth, Texas

in thousands of hours of usage. The 4-place gear with 6.00-by-6 wheels is the same type but is much larger than that of the single-seater. The nose gear is steerable through the rudder pedals.

Because it is aerodynamically efficient enough to use a relatively small engine, the new design profits handsomely from a small frontal area, achieved through ingenious nose cowling design. This also provides a sharper prow for the lower half of the engine cowling to improve the flow over the wing roots for further drag reduction where it counts most.

Cabin roominess is still retained, however, and Mooney says the airplane will emphasize cabin comfort as much as it does high performance. His figures for interior cabin dimensions are 42 ins. for width, 38 inches for head room both front and rear, and 35 to 40 ins. for leg room up front with 35 to 39 ins. for leg room behind.

Apparently this will be a "quiet" airplane. Although cabin soundproofing and interior finishing will be the last item on the work sheet for the prototype and it is therefore flying now without any interior finish, Test Pilot Taylor said it is unusually quiet. This is attributed to several factors, one of which is the airplane's use of exhaust augmentor tubes which are rectangular in shape, patterned after a Navy-NACA project of some years back. Watching it taxi by and take to the air, one is impressed by its quiet exhaust. Most augmentor tubes now being used serve to intensify exhaust noise, but these squarish little blooie tubes seem to do the opposite. They are used chiefly for more effective engine cooling and not for muffling.

Another impression given by the

Removable panels on both sides give easy access behind instrument panel without working in cabin. Triangle in glass is storm window.
—(Mooney Aircraft Photo.)

new design is its very squat, low-to-the-ground appearance. Its landing gear is shorter than usual. Despite its longer-than-usual wing span, the 4-place is easily mistaken for its smaller single-seat stablemate when viewed at a distance.

This long span for the wing was one of Mooney's primary design considerations. He places much importance on span loading and aspect ratio, these being necessary for good rate of climb and high ceilings—both of which mean excellence in short-field performance. Span is 35 ft. and wing area is 166.9 sq. ft. Wing loading is less than 14 lbs. per sq. ft. and power loading is about 14 lbs. per hp.

Composite construction is used for several reasons. First, according to Mooney, is that all-metal construction would have imposed a weight penalty cancelling out the advantages gained from the use of low-drag airfoil sections in the wing. Secondly, the costs of tooling for metal construction would have been prohibitive for a low-cost high-performance airplane design. Thirdly, he doubts that a satisfactorily-efficient laminar-flow wing for light-planes can be metal covered because it is practically impossible to achieve the necessary skin smoothness with metal. Construction is therefore composite, using steel tubing, wood, fabric and aluminum sheet. While wing, tail cone and tail surfaces are composite, the Model 20 is all-metal from and including the baggage compartment forward. This is the same construction as employed successfully in the Mooney single-seater.

Mooney's new 4-place is shooting for high performance at low cost. No price quotations have been made, but the price category will probably be less than $11,000 fully-equipped. Market-wise, this is half that of the top-notch high-performance 4-place airplanes. But it probably will compete more directly with 4-place ships of much less performance, these being in the price category just under $10,000. In this competition, the Mooney's simplicity and ease of handling will count as much as its performance.

There are no grandiose plans for launching the new Mooney. Mooney Aircraft is but a modest company from any angle, including its aims and ambitions. It had to be to survive with its little single-seater, which sells for only $2,840. Mooney recently moved from Wichita, Kansas, to Kerrville, Texas, near San Antonio. It is geared to turn out single-seaters at a rate of one a day with a small shop. The 4-place was designed so that it can be produced at a rate of 2 a week with-

Now You Can

1 HOUR LONGER

Keep an hour's flying time in reserve

when your Beechcraft Bonanza is equipped with this

Enjoy 4 hours cruise with 1 full hour reserve! No restriction of usable baggage space . . . adds only 72 lbs. full (12 empty), weight well forward under seat. Kit $195, installed $250. Give aircraft serial number with order.

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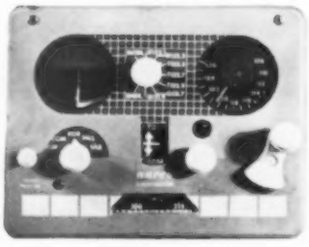
IT'S GOOD BUSINESS TO BUY BOTH



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ACCURATE, EASY TO USE OMNI SYSTEMS

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Beechcrafts are tailor made for business flying. There's plenty of room for luggage and samples; ample reserve power for full passenger loads.

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NATIONAL AERONAUTICAL CORPORATION

AMBLER 2, PA.

out straining the facilities or affecting the single-seater's production, which is now stabilized with a steady demand.

Flight-testing to iron out all the small details involved in any new model should be completed on the prototype within sixty days or so. A second wing is under construction for static tests. CAA airworthiness certification will be completed this fall. The outlook is for deliveries next spring.

Meanwhile, Al Mooney is beaming over his new model, his 20th design in 29 years. Al's friends who have seen the Model 20 perform believe he has hit the jackpot. From the way he grins when they tell him, it looks as if he believes it, too. ★ ★ ★

JUST AMONG OURSELVES

(Continued from page 13)

with airplanes being banned from wild life and wilderness areas, with the Pentagon continually ignoring civil aviation facilities in national defense despite the economy wave, it seems to us the fixed-base operator needs strong national organization more than ever before.

Only the gross stupidity of individual operators can stand in the way of a strong and truly representative NATA. ★ ★ ★

THE AG-1 PAYS OFF

YOU can't always measure aeronautical progress in terms of dollars and cents any more than you can put blood, sweat and toil that goes into aeronautical research in terms of cold hard cash.

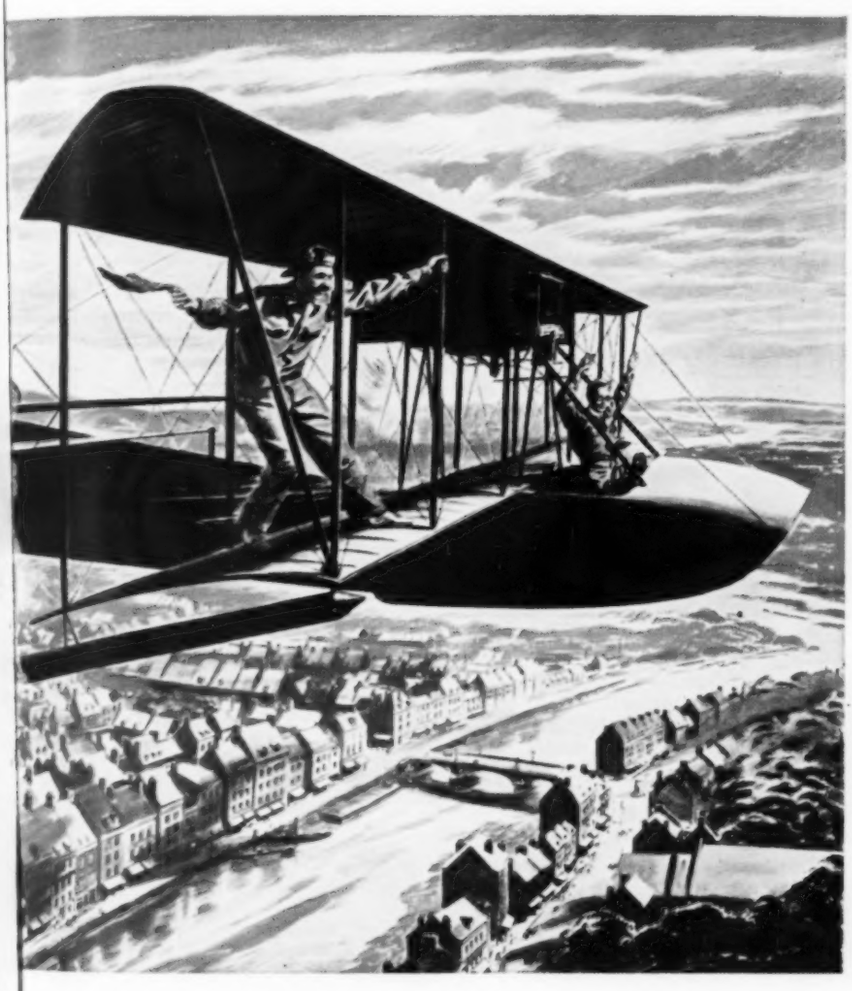
A typical example of this aviation fact of life is the ironical outcome of the AG-1 experimental agricultural research plane, which met its doom in an exhibition flight recently. But in the calamity the crash proved that all the money, time and effort that went into it was justified a hundred times over. It was a total washout, having revved down on take-off and collided with a telephone pole. Despite the fact it went in inverted, the pilot walked away unscathed. In one brief but tragic moment, the entire experiment was justified. It is now clear that some current and practically all future aircraft designed for agricultural purposes will apply some of the safety design features of the old AG-1.

One of the most serious blocks to progress in agricultural aviation is the horrible accident record. Although this sad situation can not be attributed entirely to the equipment flown, it is generally recognized that until greater

1912 Lawrence Sperry, at 19, flew automatically with the first Sperry Stabilizer. In 1914, Sperry won award offered by the French War Department for the first "stable airplane."

AUTOMATIC FLIGHT..

another Sperry first... 1912



From the day in June, 1914, when Lawrence Sperry won the French War Department's 50,000 franc prize for the first "stable airplane," Sperry has taken the lead in making flying more and more automatic . . . as flying itself has required more and more precision. From the first simple stabilizer have come development after development, such as the Sperry Automatic Pilot and Automatic Approach Control to guide planes to better landings under all weather conditions.

TODAY, AS ALWAYS, SPERRY LEADS THE WAY

In production today at Sperry are instruments that give man even greater mastery of the elements. And the military demand is so great that hundreds of subcontractors are now sharing with Sperry the important task of meeting these requirements.

1953 USAF's Boeing B-47B is equipped with Sperry Gyropilot, combining the latest in gyroscopic, servo, and signal system techniques.

1933 Wiley Post in the Winnie Mae made first solo, round-the-world flight. Using the Sperry Automatic Pilot, Post was able to nap while plane, under automatic control, flew itself.

1946 United Air Lines installed Sperry A-12 Gyropilot on four-engine fleet to insure precise automatic instrument approaches to airport runway.

19?? Sperry laboratories are busy today solving automatic control problems for jets and missiles of the future to control them.

SPERRY GYROSCOPE COMPANY
DIVISION OF THE SPERRY CORPORATION
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50TH ANNIVERSARY OF POWERED FLIGHT — PROGRESS — INTEGRITY

One of a Series of Advertisements Commemorating the 50th Anniversary of Powered Flight

Terrific! is the word for

Yes, all Piper models for '53 are terrific. The performance, flying ease and comfort will convince you why the flying public is so enthusiastic over the 1953 Piper line of fast, quiet and economical business planes. And there is a model to serve every purpose. Be sure to see and fly the new models at your Piper dealer or distributor now. You will agree that Piper is the terrific buy of '53.

• Ask one of the firms listed to demonstrate how one of the Piper models can save you valuable time and money. These firms are prepared to serve all your aircraft requirements.

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ANDERSON AVIATION COMPANY, INC.
Sky Harbor Airport
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SMYER AIRCRAFT SALES & SERVICE
Municipal Airport
Ponca City

Texas

BROWN FLYING SERVICE
Municipal Airport
San Antonio

JACK ROBINSON FLYING SCHOOL
Meacham Field
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SOUTHWEST AIR RANGERS
International Airport
El Paso, Texas Midland, Texas

WICHITA FALLS AIR TRANSPORT COMPANY
Municipal Airport
Wichita Falls

safety is engineered into these specialized craft, agricultural aviation can only go so far. The days of the old converted trainers are numbered. The demise of the AG-1 proved beyond any doubt that the ingenious cockpit design and construction and the special shoulder harness can save the pilot's life—even bring him through a major crack-up without a scratch.

So it is that the original sponsors of the AG-1 research program and the several scores of individuals and companies who had a part in it should have a feeling of real, tangible accomplishment. Already certain companies are investigating the possibilities of producing similar designs at a price the applicators can afford to pay. Although the original AG-1 sponsors did not attempt to build a prototype necessarily as a verbatim replacement for the rapidly diminishing converted trainers, they did hope to point the way to such a design and at least, by trial and error, come up with progressive design features that could be applied by all in the field. The AG-1 research program has therefore been adequately justified. And what sometimes seems to many as ignoble defeat, actually is victory in disguise. For unless new designs incorporating the safety features so admirably proved by the AG-1 are forthcoming on the agricultural aviation scene, what promises to be one of the most fruitful fields of commercial aeronautical endeavor might retrogress into a state of stagnation and leave the field wide open for ground applicators. ★ ★ ★

MOONEY M-18 deliveries are ranging far and wide. At left is L. W. Magruder, Mooney distributor at San Juan, Puerto Rico, preparing to fly home from the Mooney factory at Kerrville, Texas. Dick Golembeski (right) of the Mooney flight test department departed behind Magruder for Canada to deliver another M-18.
—(Mooney Aircraft Photo.)

A QUARTER OF A CENTURY OF CONTINUAL DEVELOPMENT TO BUILD THE PLANES YOU WANT

1928—CHUMMY

1932—E-2 Cub, 37 hp.

1936—J-2 Cub, 40 hp.

1938—J-3 Cub, 65 hp.

1939—Amphibian (Experimental)

1940—J-4 Cub Coupe, 75 hp.

1941—4-place P-4 (Experimental)

1939—J-5 Cub Cruiser 75 hp.

1942—PT military trainer (Experimental)

1943—3-place glider

1944—Glomb (Navy)

1942—L-4 Grasshopper (Army)

1945—Skycycle (Experimental)

1946—Super Cruiser

1946—Skysedan (Experimental)

1945—Skycoupe (Experimental)

1947—PA-11

1949—4-place Family Cruiser

1948—2-place Vagabond

1949—Clipper

"It flies like a CUB"

All over the world pilots use that expression to describe any nice flying airplane, be it a bomber, huge transport or jet fighter. What finer tribute to any airplane than being the standard by which others are compared?

"Like a Cub" means safe, honest flight characteristics. It started with the E-2 Cub which flew nearly 25 years ago, became world famous with the Piper Cub in which more people have learned to fly than any other plane.

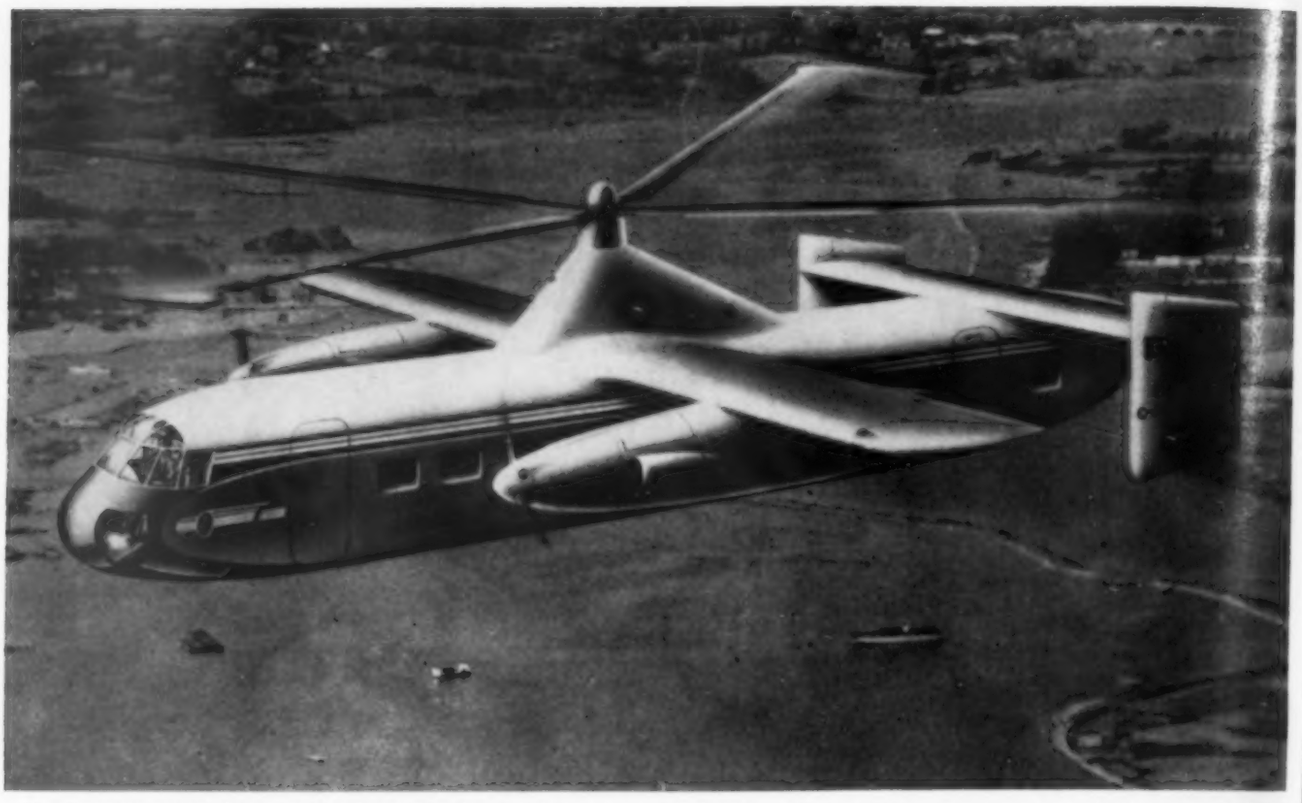
Today's Pipers with their speed, range and utility are a far cry from the earlier models, some of which are shown here, but they all retain the characteristics of flying ease and safety which have resulted in a preference for Piper.

That this Piper program of continual progress has proven so important during the world's first half century of flight is evidenced by the fact that more people have bought *and are buying* Pipers than any other plane in the world.

PIPER

The Piper tradition of flying ease was never more evident than in the Piper Tri-Pacer with interconnected controls and tricycle landing gear. In this fine four-place airplane you have the ideal combination of handling ease, comfort, economy and better than 120 mph speed. Fly the Tri-Pacer at your Piper dealer's today.

For more information on the Tri-Pacer and companion Pacer model, write for full-color catalogue to Piper Aircraft Corp., Lock Haven, Pa., Dept. F-9.



JET-POWERED INTER-CITY HELICOPTER COACH developed for production by Fairey Aviation Company in England carries 40 to 50 passengers and was requested by the British Ministry of Supply to meet British European Airways requirements. Known as the Fairey Rotodyne, it is powered by two Napier Eland propeller turbines featuring tip-driven jet rotors.
—(British Information Services Photo.)

Questions and Answers for Airport Operators

Landing Area Access for Off-Airport Operators

QUESTION: I have maintained a file of the "Questions and Answers for Airport Operators" section of your fine magazine and have found at times I was able to refer to them for helpful information.

Here is a question I want to ask: What is a fair arrangement for a municipal airport to provide right-of-way onto its property to a commercial operator establishing a flight service business on private property adjacent to the airport?

There are present other operators leasing city-owned hangars who expect their interests to be protected. However, it is felt that the city should not hinder the development of air activity at the field—providing the off-field operator is willing to pay a fair fee for the use of the field. But—what is fair? It will help if you can cite the experiences of others with this problem.

ANSWER: There are some public airports with similar situations. We are familiar with two—Dallas and Fort Worth. It would be difficult to find out how many similar situations exist in the U. S. There is no known tabulation which would disclose such facts unless NATA has compiled it in its recently-undertaken survey of operators.

Frankly, the peculiar circumstances surrounding each case would appear to determine the policy toward arrangements to be adopted. Some things seem to stand out to influence any decision. Existing operators using city-owned facilities naturally expect their interests not to be endangered. They do not want to be put at a disadvantage by any new policy to be established.

On the other hand, a public airport provided by public money is expected to be open to the public generally and not to be limited to those who actually have their places of business on public land. There are certain provisions of documents under which federal aid or federally-donated facilities are received by political subdivisions. These provisions provide that fields so participating be operated for the use and benefit of the public without unjust discrimination and without the grant of exclusive rights. These provisions also apply generally to use of the landing area for aeronautical purposes.

The owning agency, then, is concerned with arriving at an arrangement under the terms of which all segments of the public would be enabled to operate without discrimination of an unjust sort. It would naturally wish to secure reasonable revenues from its field. It would not wish to establish a policy where one operator could secure such use free while others were forced to pay for such use.

It follows that if operators on the airport are required to pay charges for the use of the field, others should also pay on a reasonably similar basis. These charges are not hangar rentals or ground rentals for privately-owned hangars. These are charges for use of the landing area. On many airports, there is no such use charge to operators or commercial users. On others there are use charges or "business privilege" charges which amount to the same thing. If it is necessary for an operator on private land also to rent airport land or facilities constructed for his substantially-exclusive use, it is believed reasonable charges are justified for such land or facilities.

In some cases where there is no other charge except hangar rent, such rental may include an amount above the normal real estate revenue formula to provide some funds for maintenance and operation of the field. But it is believed very few owning agencies

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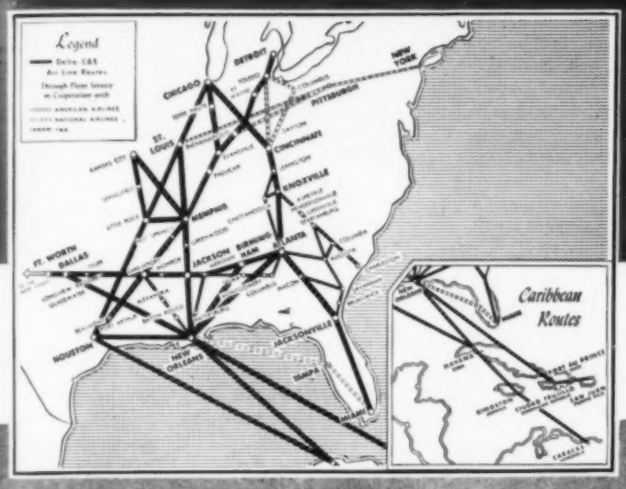

DELTA-C & S AIR LINES serves 59 cities in the United States and Caribbean area over routes totaling 9,508 miles. Its fleet includes seven DC-6's, six Constellations, 31 DC-3's and 20 Convair 340's. Ten DC-7's are on order for early 1954. Engines of Delta-C & S planes are lubricated with *Texaco Aircraft Engine Oil.*

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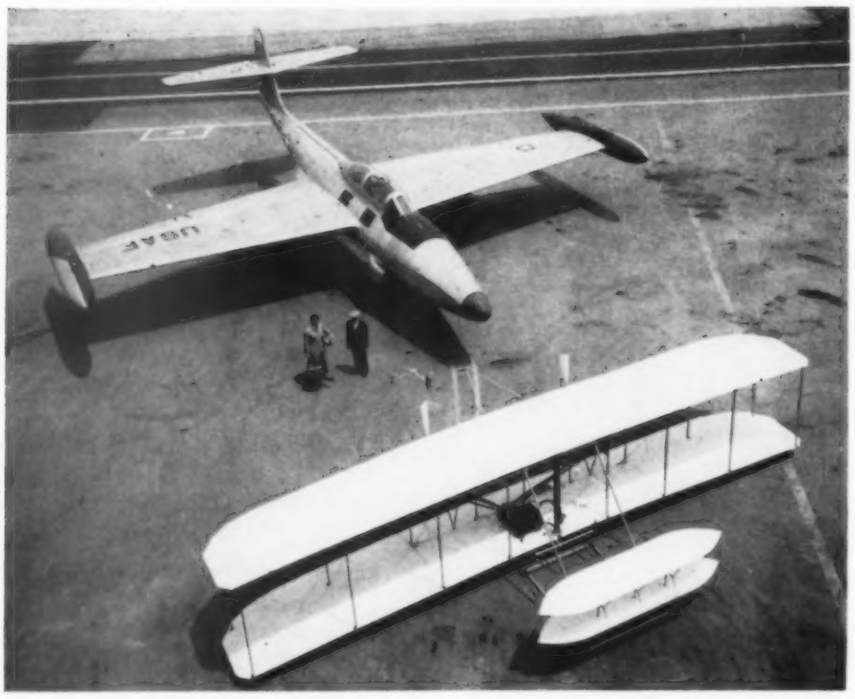

FULL-SCALE REPLICA OF THE ORIGINAL WRIGHT BROTHERS KITTY HAWK BIPLANE is shown above with Northrop's USAF F-89 Scorpion, jet-powered all-weather interceptor. Only full-scale Kitty Hawk replica in the U. S., the model was recently completed through the combined efforts of 20 aircraft manufacturing organizations under a project sponsored by the Institute of Aeronautical Sciences. Project contributors included Northrop Aeronautical Institute, whose students fabricated the complete wing panels and performed all final assembly and rigging. James H. Doolittle, chairman of the National Committee to Observe the 50th Anniversary of Powered Flight, unveiled the replica in Los Angeles. It is now on permanent display in the W. F. Durand Aeronautical Museum in Los Angeles. —(Northrop Photo.)

consciously provide such a planned rate structure.

If you had an empty hangar you would no doubt rent it to an operator on terms generally the same as those already in force. The man who builds his own facilities on or off the public airport is taking a calculated risk and has reason to believe he will not be penalized for having so provided his facilities. If his business attracts new traffic or increases use of the field, he isn't the only one to profit by that. Part of the calculated risk such a man takes frequently lies in the fact that his location with respect to the focal point of public visitation at the airport is more remote than that of operators who rent city-owned hangars and have preferential locations. When this is the case, he must add force to his selling efforts before he can offset that disadvantage.

At Fort Worth's Meacham Field, there has long been an operation on non-airport land located some considerable distance from the city-owned hangar line. At this field, the city sells the gasoline and the customers of this operator as well as the operator himself have purchased gas from the city. New policies are now being formulated by the city with relation to such sales and to general arrangements with all operators on the field. Therefore no set policy is available for the information of this column and its readers. However, neither this off-

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BATTLE OF BULGES has been overcome by Lockheed Aircraft with production orders from both the Navy and Air Force for Super Constellations powered by turbo-compound engines and carrying powerful radar systems for high-altitude picket duty along the nation's air frontiers. The flying radar stations are designated RC-121C by the Air Force and WV-2 by the Navy.
—(Lockheed Photo.)

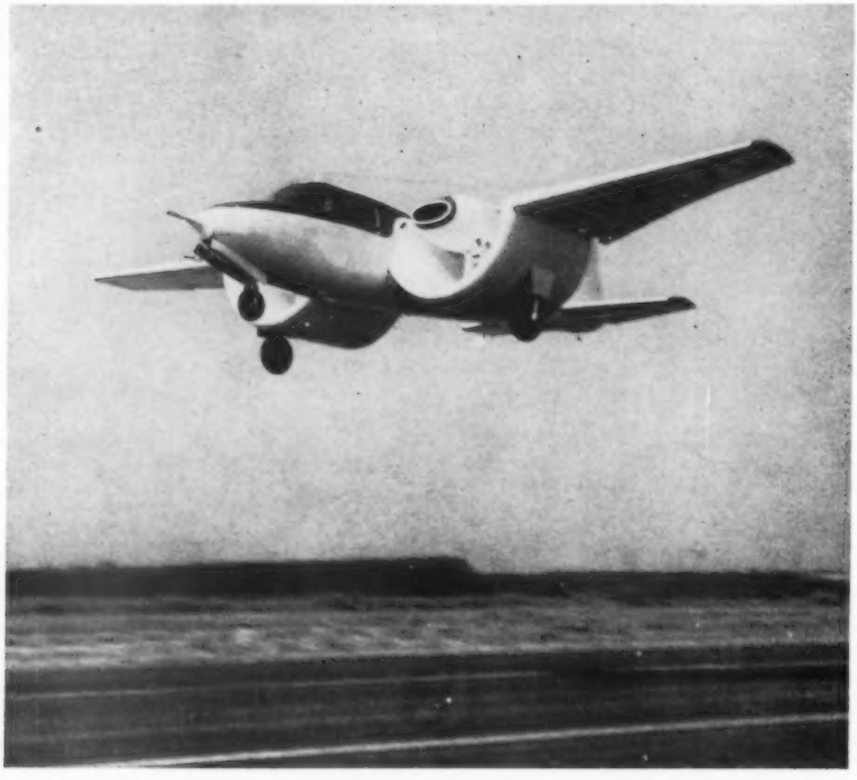
airport operator nor those using city hangars have apparently been required to pay landing field use charges as such, although the net profit from the sale of gasoline is an identifiable income offsetting use of the field and the costs related to such use. Arrangements now under discussion would permit operators to sell gasoline and pay a gallonage fee to the airport. This would include the off-field operator.

As far as we can determine, there is no particular discrimination in charges made at Love Field in Dallas between those whose facilities are leased from the city and those whose facilities are on privately-owned land adjoining Love Field. There is a charge of $100 for an annual permit to sell gasoline and a 3-cent-per-gallon charge on all gas dispensed. Off-field operators have an optional fee which assures them of parking space for their customers. This is, in effect, rental of city-owned land. A landing fee is applicable at 3 cents per thousand pounds of aircraft weight for any landing with revenue passengers aboard. Such fees and charges, as far as we know, are payable by all operators and therefore do not put the off-field operators at a disadvantage.

Spreading Out

This column must be attracting new interest. Out California way, Clarence (The Man) Shy, manager of the Stockton Municipal Airport, published our recent column "A Day in the Life of an Airport Manager" in its entirety in his interesting monthly airport newsletter—with proper credit, of course. Made us happy to see him do it. Other readers are always welcome to use this column in their airport publications. Helps to get the word around to more people.

We also had letters last month from regular readers in New England and Mexico City. We were happy to pass along the information they requested, the Mexico City inquiry being answered by a direct letter. The query was from F. J. (Pancho) Waltz, Beechcraft distributor in Mexico. Pancho's going great guns down there and has excellent plans for improving his facility. We're going to visit him in a few months to check up on his progress. Then we'll let you know all about his new layout, which is bound to increase the amount of private flying traffic from the States into Mexico City's wonderful airport.



TWIN-ENGINE CUSTER CHANNEL WING CCW-5 made its first flight recently at Oxnard, California, the 4,000-lb. airplane reportedly getting into the air after a run of only 100 ft. It then circled a 5-mile course at 1,000 ft. and was landed with power off at less than 40 mph., said Designer W. R. Custer in a letter to FLIGHT MAGAZINE. Pilot Walter J. Davidson said it "handled beautifully with excellent control."

—(Custer Channel Wing Corp. Photo.)

FLIGHT TO ALASKA

(Continued from page 19)

are two RCAF landing fields spaced about equidistant — Sikanni Chief and at Profit River. The first is 3,200 feet above sea level, 6,000 feet of runway and the second is 2,000 feet high with same runway length.

Fort Nelson was a gas stop where we were briefed by the weather forecaster and promptly cleared on up the highway to Watson Lake, where we decided to spend the night. Leaving Ft. Nelson we began moving in on the foothills of the Canadian Rockies and across some very magnificent but rugged rock strewn valleys. Again, this terrain is moderate and an elevation of only 6,000 feet cleared us all the way through with plenty of margin to spare.

About 60 miles out of Ft. Nelson there is a pass which is wide enough to turn a Cessna around in, even at minimum altitudes. Once you are beyond this pass it's "downhill" all the way to Watson Lake. Some 150 miles beyond Fort Nelson is another good RCAF landing strip called Liaird River with a 6,000-foot runway at 1,400-foot elevation. Most of these strips are emergency only, especially welcome if you want to stop for weather or go fishing. They are not

A Message to Engineers from Walter Tydon*

"A secure future, exceptional opportunities for advancement, and a high starting salary await you at FAIRCHILD, if you are one of the men we are looking for. We have openings right now for qualified engineers and designers in all phases of aircraft manufacturing; we need top-notch men to help us in our long-range military program: turning out the famous C-119 for the U. S. Air Forces.

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*Walter Tydon, widely known aviation engineer and aircraft designer and veteran of 25 years in aviation, is Chief Engineer of Fairchild's Aircraft Division.

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inhabited nor do they have fuel facilities.

Beyond Liaird River it's another 75 miles into Watson Lake, situated in relatively flat country, and an excellent place to spend the night. It's an active town with an active airport, operated by the RCAF. In the Yukon Territory of Canada, this spot boasts a fine lodge run by Dels Delziel, who dispatched a taxi out to the field to pick us up. After a delightful Canadian dinner and a night's rest we got up to find that the weather was a little on the low side up the line and the forecaster recommended soon departure which suited us fine and gave us the opportunity of taking in the local sights and getting some pleasant relaxation. The real wilderness you read about begins here and the spirit of the northwest frontier is in the air.

Alaska Humming with Aviation

As predicted, the weather cleared at noon and we were off the ground headed for Whitehorse shortly after lunch. Our first radio check point was at Teslin, about 125 miles out of Watson Lake. For about 50 miles the highway parallels Teslin Lake, a long and narrow body of water surrounded by relatively low mountains, and typical of the many beautiful lakes so prevalent in northwestern Canada. At the lake's far end is another landing strip only 2,600 feet above sea level and 6,000 feet long, which would make an excellent emergency strip if needed. It's only 75 miles from this field to Whitehorse, where we decided to RON because of doubtful weather ahead and because it is probably the busiest town between Vancouver and Anchorage. The airport here is high on a bluff directly above the town. Superb accommodations were available at reasonable rates at the Whitehorse Inn.

The next morning — Saturday, June 13 — we cleared customs for Alaska, found the Canadian customs people very cooperative, and were cleared by the controller down the highway for Northway, where we put down 2 hours, 10 minutes later. This town also was a port of entry to clear U. S. Customs for Alaska. Incidentally, the flight from Whitehorse to Northway is strictly routine and our highest altitude was 4,000 feet above sea level. The terrain was never above 3,000 feet MSL.

After leaving Northway you fly the highway to Toc Junction, where you pick up the Glenn Highway into Anchorage. The Alaska Highway con-

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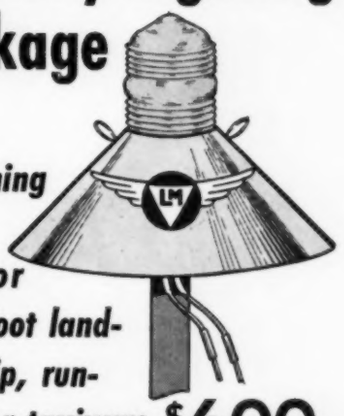

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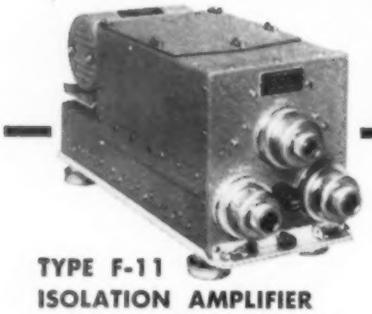

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tinues northward into Fairbanks, but we left it to fly on to Anchorage. It's in this area you begin to see the high peaks and the huge glaciers. After turning left at Toc Junction the first weather reporting point is Gulgana. Here we were cleared directly on the bee-line highway into Anchorage. About 100 miles from Anchorage is Sheep Mountain, a pass on the highway at the base of Mount Markus Baker. Sheep Mountain has a weather reporting station and a homer. Here we viewed with awe the huge Matanuska Glacier scarcely a half-mile away — a tremendous valley full of ice that appeared to be creeping down the mountainside and melting into the valley below — a sight we won't soon forget.

After leaving the glacier we dropped down fast into the Matanuska River Valley and over the town of Palmer. This was the first agricultural section we saw since leaving British Columbia.

It was replete with painted farm houses and barns, cattle in the fields and broad acres of growing crops, a rare sight after so many miles of muskeg, foot hills, wilderness and muskeet.

Herb Mensing of Alaska Aeronautical Industries, the Cessna distributor, was at Merrill Field in Anchorage when we came breezing in. Surrounded by air fields, Anchorage surely must be one of the heaviest air traffic centers in the world. It was obvious to us at once why everything up that way moves by air. There's one railroad between Anchorage and Fairbanks, plus the one highway we "flew" in on. That's all. Then too, the U. S. Air Force has Elmendorf Air Force Base and Campbell Creek Air Force Base. Southwest of the city is the new Anchorage International Airport, another excellent field with a seaplane base adjacent to it on the shore of Lake Hood. We've never seen so many seaplanes anchored in one spot as at that base.

Fishing and Relaxation

You don't fly to Alaska for business alone. So we decided to do some of the fishing we had heard so much about. We picked Chelatna Lake Lodge, some 75 miles northwest of the city, situated on a beautiful mountain lake fed directly from a Mount McKinley glacier. This lodge was just one of many beautiful spots that cater to airplane owners and fliers, most of them accessible only by air. The one day of trout fishing was so profitable it was well worth the trip, business notwithstanding. It was obvious that anyone with an airplane on floats in this territory could find the most exciting fishing in the world and actually go into lakes that have never before been visited by human beings.

We left Anchorage on Wednesday, June 17, in the afternoon, flying directly up the Alaska Railway to Talkeetna, where we visited the local bush pilot and ate lunch at Talkeetna Lodge right in the heart of the finest fishing waters in America. You can land at Talkeetna, taxi back to the south end of the strip and cast directly into the Susitna River!

On up the Alaska Railroad we went to McKinley Park on the northeast slope of Mount McKinley. The airfield is at an elevation of 1,720 feet and the runway 3,000 feet long — large enough for DC-3's, despite the tricky winds that seem to blow from all directions at the same time. Just 100 yards off the field is Mount McKinley Park Hotel—a definite "must" stop for anyone visiting Alaska.

Fairbanks, like Anchorage, is literally splattered with airfields. Approaching from the southwest we passed over Fairbanks International, which has a 400-foot elevation and 6,000-foot hard-surfaced runways. The next field was Phillips, just west of town about two miles. Ladd Air Force Base is just east of Fairbanks and Eielson Air Force Base is about 20 miles southeast. While at Fairbanks we visited with Sig Wein and Jack Waley of Wein Alaska Airlines, saw our first hydraulic gold mining operation, and was impressed with this bustling frontier city that even boasts a major university. But the most impressive experience we had was sitting out in broad daylight at midnight! Although the sun had set below

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the hills to the north, we climbed into the 180 at midnight and went up to 5,000 feet where we were able to see the sun on a heading of true north. Its colors were indescribably beautiful and a sight we'll never forget.

1,900 Miles in Daylight

When we came down from this brief "sight-seeing" trip we decided that with broad daylight at midnight we might as well be on our way back as our schedule called for a visit with Wilf Olsen of Foothills Aviation, at Calgary, Canada. So at 1:45 a. m., in broad daylight, June 18, we took off and headed southward for Calgary, some 1,900 miles away.

We were cleared straight down the Alaska Highway to Whitehorse where we went through customs in a matter of minutes, thence to Fort Nelson for lunch, on to Edmonton for gasoline at 6:30 p. m. and on into Calgary about an hour later. Thus in one day's flight, by taking turns at the wheel and navigating by highway alone, we negotiated the 1,900 miles from Fairbanks to Calgary in 11 hours, 30 minutes recording tachometer time. Our average was 155 miles per hour for this, our longest one-day hop.

In Calgary we discussed with Wilf Olsen what a revelation our trip had been, how simple and easy it was, how the word should be passed on to thousands of airplane owners who perhaps had the same mental reservations we had had so many years about the difficulties of flying to Alaska. The secret of the flight, we agreed, was the Alaska Highway and the fact that Canadian forecasters will not clear you with a ceiling under 2,000 feet or visibility less than 5 miles. And even though you see mountain peaks along the way it's never necessary to fly above 6,000 feet to clear all passes and terrain for the basic valley and river elevations are very close to sea level.

Fuel and hotel accommodations posed no problem. Fuel prices varied from 40 cents to 70 cents an imperial gallon (5 quarts U. S.). The high of 70 cents was paid at Ft. Nelson. Hotel rooms averaged $4 a night in Canada, $7 in Alaska. Meals in Canada averaged less than same quality meals in the States. Meals cost more in Alaska — about $2 for breakfast, $3 for lunch and $4 up for dinner. We found routine mechanical work was available at all stops. But if you have any major work to be done it would be best to find it before leaving Calgary or Edmonton going up and at Anchorage or Fairbanks before starting your return to the States.

You will need a survival kit to fly the bush. They can be purchased or rented from Canadian aircraft distributors. We purchased one for $26 that took care of four people. It had thirty items, such as emergency food, first aid materials, mosquito netting, bug repellant, fishing gear, weighed about 25 pounds and was very compact.

Cessna 180 Performance

We averaged 152-mph. ground speed on the way up, and 168 mph. on the way back. The 180 is a real performer — terrific at altitude and on short fields. Rate of climb averaged out well over 1,100 feet per minute. It settles down to a steady 155-160 mph. true air speed at 7,000 to 8,000 feet. Our fuel consumption averaged 11 gallons an hour. We made no particular effort to conserve fuel or try for top performance speedwise. Our 1,900-mile trip from Fairbanks to Calgary is hard to believe. But we had 24 hours of daylight, there was no navigational problem with the highway beneath us, the weather was CAVU, and we both took turns at the wheel.

Leaving Calgary for home we dropped into Great Falls, Montana, where we visited Homer Holman, Skyway Flying Service. Thence on to Billings to visit with John and Mildred Lynch of the Lynch Flying Service. Saturday morning we went on to Cheyenne for a business session with Vince De Sciose of Sky Harbor Air Service and on into Wichita for a 4:30 p. m. arrival.

In totaling up our log, we had flown more than 8,000 miles in 13 days and had talked to every Cessna distributor and many dealers along the way. We did not miss one single planned stop or ETA. No major hold-

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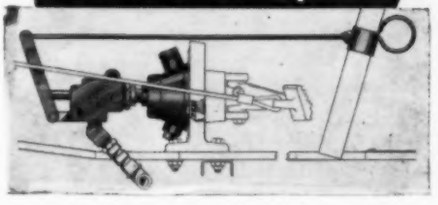

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